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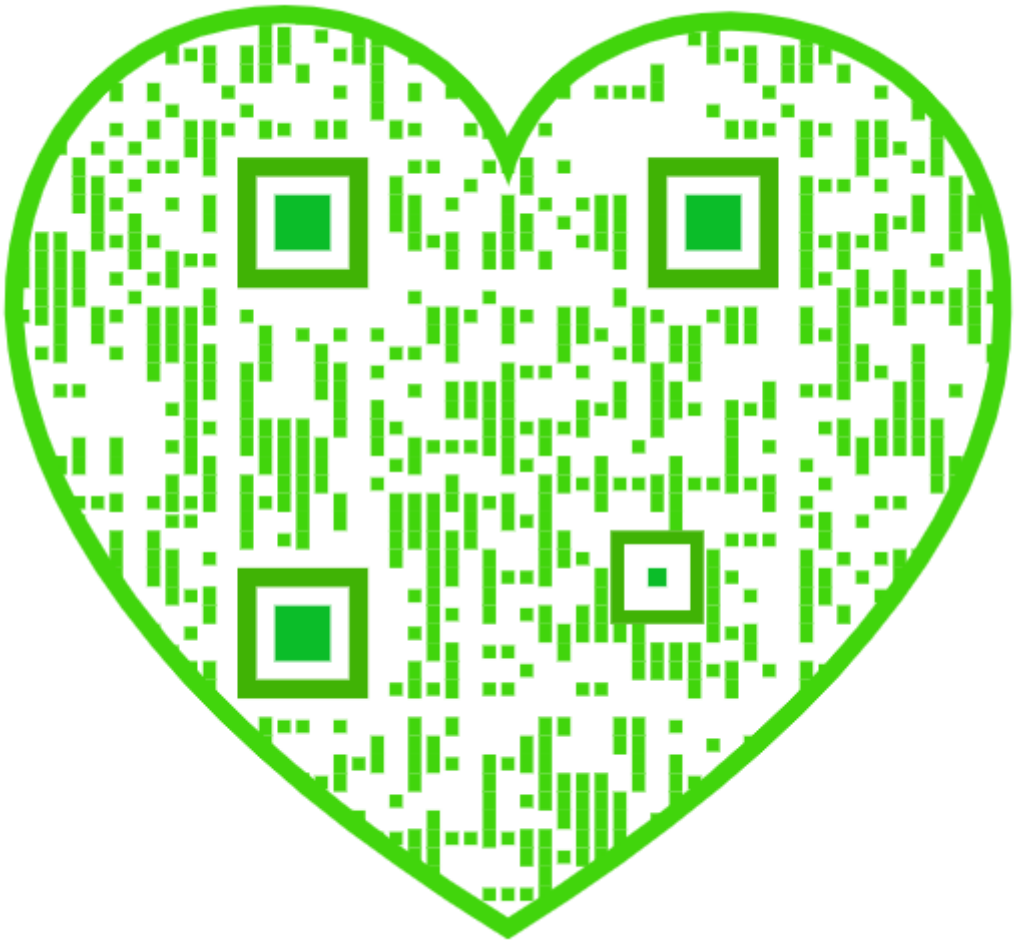

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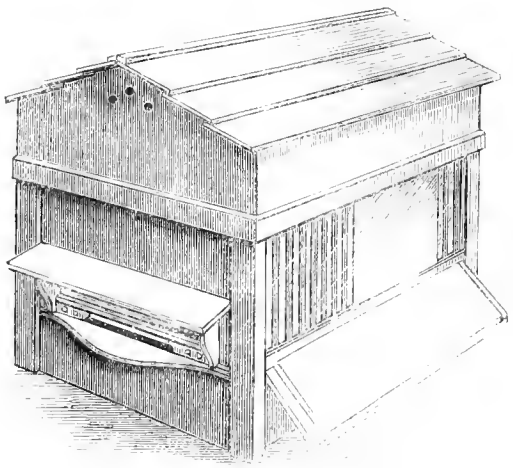

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Editorial, Notices, &c.

MAY.

To-day we commence our ninth year of public service with this *Journal;* and in thanking our patrons and friends for their many kindnesses in the past, we trust the straightforward course which the *Journal* has hitherto pursued in the interest of bee-culture generally will secure for it their continued confidence and favour. Press of matter prevents our wandering from the business lines that have the strongest claims to attention, but we cannot open a new volume without alluding to the vast improvements that have taken place in bee-keeping since the *Journal* came into existence, and expressing a hope that our subscribers, in recognition of its helpfulness, will give it their hearty support and recommendation.

To our contributors we tender our most grateful thanks, for by their help, cheerfully, and (without exception) voluntarily, given, the bee-keeping world has been kept informed on all the topics which, through individual exertion, have so greatly advanced the science of bee-culture, and enable it to assume a position amongst the industries of Great Britain and Ireland that its most sanguine promoters scarcely dreamed of ten years ago.

For ourselves, we promise to do our best to deserve what it is not in mortal to command—Success!

The prolonged coldness of the weather, consequent on the prevalence of easterly winds during the past month, has sadly retarded the progress of our favourites, for, excepting occasionally, they have scarcely visited the fruit-blossoms with which Nature has so bountifully and beautifully embellished the earth, and many of the fruits which she has so lavishly 'brought to the birth' will not be 'brought forth' through the impossibility of apistical influence, a great argument in favour of bee-keeping.

So much will be found in other columns in respect of hives and bee-matters generally that we have only space for a few cautionary remarks.

May Weather.—Though May is described as the merry month in which bees from flower to flower do hum, it will be well to remember that, owing to some occult influence, there is usually a cold spasm, lasting about a fortnight, about the middle of it, when snow, hail, sleet, and cold rains are probable; and should this occur, it may be necessary to feed stocks, and will be unwise not to feed swarms should any appear.

Swarms.—The weather will probably make swarming late this year, but if they be supplied with sheets of foundation when hived, and have not too much room in their brood-nest, they will be enabled (weather permitting) to store honey in supers or sections in rear or at the side of the nest in a week or ten days from hiving.

After-swarms.—These consisting almost wholly of young bees, *i.e.*, those unable to take wing when the first swarm left the hive, will make capital stocks if treated as suggested with swarms in respect of comb-foundation, and where increase of stocks is a consideration the practice is desirable.

There will, of course, be the natural risk attending the wedding flight of the queen, and her fertilisation should be carefully watched for. Those who do not care to disturb swarms in their early days may test the presence of the queen by putting a sealed queen-cell into the top of her hive, which cell will be destroyed in a few hours if she be present.

Returning Swarms.—Swarms and casts are sometimes not wanted, their presence being more desirable in their home hive as honey-gatherers. When it is intended to return them, hive them in a skep or pail until evening, then

take them back to their home and throw them on to the alighting-board. If the swarm be large it may be necessary to increase the width of the board temporarily, and raise the hive an inch or so in front.

Putting on Supers.—These may be put on when there is an abundance of bees, plenty of honey in the fields and gardens, and fine weather to enable the bees to collect it. Bees will often store in sections on their own ground-floor, when they will not enter supers; hence it will be advisable to give them the opportunity, though the supers be afterwards placed on the top, as some recommend.

White Grubs on Alighting Board indicate a serious check in the incoming of honey, and liberal feeding should instantly be resorted to.

MANAGING AN APIARY.—SWARMING AND INCREASE OF STOCKS.

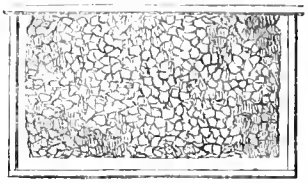
Having shown the way to the honey-harvest, and how to get it to the hives, we now turn our attention to another profitable branch of apiculture, viz:, the production of swarms for sale, or for the purpose of increasing the apiary. We do not forget that we left a number of queens unemployed in our last number, or that we have promised to tell how to ripen extracted honey; but all will appear in due time, all being well.

Our problem now is the multiplication of stocks, by swarming or division, and we are supposed to have ten fairly good ones in elastic frame-hives, and we are to do our best from May to October. We have already shown in the February *Journal* the way to stimulate bees to cause them to increase the populations in their hives, and we have now to show how they may be divided and subdivided to form separate colonies, and how to insure their establishment with laying queens at their head.

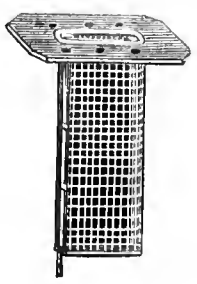
Leaving out all question of the superiority of any particular breed of bees, and devoting attention to the principles of increase only, we would suggest, in the first instance, that without the presence of drones in or around the apiary, the chances of success will be very greatly diminished. We therefore advise that no attempt to form artificial swarms, or to cause queens to be raised, be made until drones are on the wing, or sealed drone-brood in such forward condition as to warrant their presence in the air when the young queens come to maturity, and take their wedding flight. Examination at intervals of a few days will show which are the most forward stocks; and bearing in mind the object in view, it will be well to insert an empty comb containing drone-cells into the centre of a strong hive; and to cause the queen and bees to believe in a good honey-yield, and raise drones accordingly, we would increase the supply of food to that particular stock, and if it be kept up regularly, drone-brood will be raised as a matter of course. These being in one of the strongest stocks, will be 'desirable' as being the sons of one of the best queens in the apiary; and being early in the season, will be in the character of drones '*selected*' for mating purposes.

When it is known that drones will be on the wing within a week or ten days, another of the strongest stocks should be determined on with a view to the production of queens, for it will be better that they should not be, as is too commonly the case, raised in the same hive as the drones, as the wedding of relations does not tend to increase of strength in the offspring.

There are many ways in which increase of stocks may be proceeded with, but, in the present instance, a set plan should be determined on and adhered to. The first necessity is the removal of the queen from the approved stock, that queen-cells may be started; having done which, about mid-day, she should be put into a box* with a hundred attendants, and the hive should be closed as if nothing had happened, this hive being considered No. 1. A new hive should then be provided, and four or five of the frames, fitted with sheets of foundation, as described on page 230, should be enclosed by a division as a snug receptacle for an early swarm, which may not be of very large proportions. The hive No. 1 should then be carried to a new stand, and the new hive (which will be No. 11 should be put in its place with a feeding-bottle, containing a supply of syrup upon it that the incoming bees may not want. The flying bees from No. 1 will then begin to pour into it, and when a fair number have alighted, the queen should be placed at the entrance, and allowed to crawl into the hive, when, recognising their altered circumstances, the bees will speedily arrange



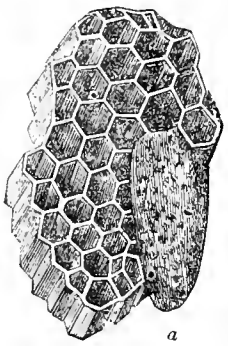
* We prefer to advise a box, which need only be of paper or card, because amateurs are likely to take more time over the proceedings than would an expert; and with a hundred bees the queen would be safe for an hour or more. Otherwise a queen-cage to be let down through the opening in the quilt, and half-a-dozen bees, would be sufficient, and the feeding-bottle could be set above it, the queen being presently released in the usual way.



themselves as a swarm,* and set to work accordingly.

The bees of No. 1 will thus speedily be reduced in numbers, and it will be well to contract the entrance of the hive for a day or two: but all the young bees will be at home, and as their numbers will rapidly increase, there will be no danger,† except from sudden cold.

The stock (No. 1) will now soon begin to raise queen-cells, more particularly if well supplied with food,‡ from which young queens may hatch in from nine to sixteen days after the swarm was formed. At the end of seven days, however, it will be well to examine the stock (No. 1) to ascertain the progress made, and the number of queen-cells raised and in course of formation, which may be one or two only, or there may be from 30 to 50. Should there be less than ten, the least number required, separable and available,§ it will be necessary to treat a second stock in the way that No. 1 has been dealt with, that sufficient queen-cells may be obtained for the whole. We will, however, suppose, as is quite reasonable, that No. 1 will have produced the desired number, and that on the seventh day a certain proportion, say 3, 4, or 5 of them, will be found sealed, or, as they are often termed, 'ripe,' though actual *ripeness* can only be reached at hatching-point. Having then, say, four



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queen-cells sealed, and fit for removal, *i.e.*, complete, and not likely to be injured by the bees, to whom they are to be given, we would, on the eighth day, make artificial swarms from the four next best stocks in the apiary, after the manner described* in the foregoing, and on the ninth day would give each of the four one of the 'ripe' queen-cells.

Transferring Queen-Cells is very simply performed, and it matters little how it is done, so that the cells be not damaged in removal.† The chief danger is in the bees not being prepared to accept the cells when given to them, which may arise from their not having had time to recognise their queenless condition, or through old age and long queenlessness having rendered them callous and, in a sense, uncivilised. Twenty-four hours, the time above contemplated, is usually sufficient to bring the bees to a reasonable if not a reasoning condition; and as a rule they will gladly accept a queen-cell from any other hive. In cutting them out we simply pass a sharp pen-knife blade round them to separate them from the comb, being careful not to injure the cells or jar their contents. We then carry them to the hive they are to be given to, and stick the cell between two of the combs, point downwards. There is no occasion for fussing over this operation if the hive is full of bees. The cell may be laid upon the bars and covered with a glass, that the coming forth of the queen may be observed; or if but sparsely supplied, the cell may be 'stapled' to a central comb with a hairpin—all that is necessary being that the cell shall be kept at the natural heat and moisture, and that its end be free that the queen may gnaw her way out without hindrance.

After inserting the queen-cells, it will be well in a day or two to examine them, and if any be destroyed‡ to replace them from

* Some writers would advise that combs of brood and pollen be given from other hives to swell the numbers of the swarm, but we prefer not to do so. The flying bees of a strong hive are sufficient for a *natural* swarm, and we shall presently require all the strength of the other colonies in their turn. Foundation-combs and food are greatly helpful to the bees, and ensure clean, new, straight combs in their hive, and the chance of importing disease into it, as too often happens when combs of brood are taken from various sources, is avoided. This plan also dispenses with the necessity for opening a number of colonies with the consequent risk of robbing.

† It should be quite understood that this kind of operation can only be safely performed in warm weather—to attempt it in cold or wet would be to court failure. Should an unexpectedly cold night follow the swarm-making operation, the hives should be carefully covered up and protected.

‡ Stocks from which swarms are artificially made having no queen-cells, and their own numbers being reduced, do not always commence to raise queens immediately, but having eggs in the hive which have been newly deposited, a day or two's delay need give no uneasiness, as queen-cells can be safely begun on larvæ five to six days after the mother-queen's removal, during which time the hive's population will have increased immensely.

§ Queen-cells are often built in clusters that cannot be separated without destroying some of them, and sometimes immediately on opposite sides of the same comb, when, as a rule, they are equally inseparable.

* The stock containing the desirable drones may be one of these, if the operation be performed during the afternoon, after the drones have taken their flight for the day, and are all at home. The later exodus of the bees from the hive to form the swarm on the old stand, will probably lower its temperature sufficiently to induce them (the drones) to stay within doors for a day or two, during which time many others will have hatched; but under ordinary circumstances the drones of such hive, though they joined the swarm, would find themselves 'not wanted,' and would return, or enter another queenless hive.

† In performing this operation the cutting-out process was thought to be so seriously damaging to the combs from which the queen-cells were taken, that minute directions were usually given to cut out the cell on a triangular piece of comb, and then to cut a piece of similar size and shape from the comb to which it was to be transferred; when, by interchanging the pieces cut, both holes would be filled up, and the comb's entirety preserved.

‡ Destroyed queen-cells will be found torn at the side; those from which queens have naturally hatched-out will have the opening at the end of them, at *a*.

the hive No. 1, in which they will be most advanced.

During all the time between the second series of swarm-making and the hatching-out of the queen-cells, queen-raising will probably be going on in each of the stock hives from which swarms have been taken; but the queen-cells from No. 1 being in advance of the others will hatch first and the young queens take precedence.*

Hives Nos. 1, 2, 3, 4, and 5 having been dealt with thus far, the remaining five should be similarly treated, as queen-cells mature in No. 1; and it may reasonably be supposed that by the end of twelve days from its first deprival, all the others that are 'fit' will have been 'swarmed,' and furnished with queen-cells.†

Second Swarms.—It is perfectly natural for hives that have swarmed to send forth 'casts,' or 'after-swarms' in about nine days, and it will, therefore, only be reasonable to expect the old stock, No. 1, to be fit for division at the end of twelve, and that each of the others will be in similar condition in due order of time. We would, therefore, divide No. 1 into two, by putting three of the frames of brood without bees, but with one queen-cell at least, and two frames of foundation alternately with them in a new hive and placing it upon the stand occupied by No. 1, which should be removed to another position in the garden,‡ when the new hive will be at once taken possession of by the returning bees, and being all young ones, their welfare, with ordinary care, will be assured. Should there be an excess of queen-cells in No. 1 after the twelfth day, and there remain any of the original ten hives undivided that are capable of division, the work should be proceeded with at once, or should either Nos. 2, 3, 4, or 5, be sufficiently strong they might be divided as advised, and all the queen-cells utilised.

In the meantime the swarms already made, being located in a limited number of frames of foundation, will require attention. In ordinary weather and with a fair supply of food (from the fields, or otherwise if necessary) they should fill the frames with comb within a week, and be ready for additions to their number, which may be added one by one in the centre of the brood-nest, so long as the bees are able to cover, *i. e.* fill all the spaces between them. After the queens have hatched, their hives should be examined at intervals of a few days, until the presence of eggs gives evidence that they have become fertile, and at each examination a frame of comb foundation should be given to the divided stocks so long as they are capable of building it into combs. We sincerely advise the free use of foundation when great profit is desired—one pound of it costs 2*s.* 6*d.*, but if not supplied it will take 20 lbs. of honey or syrup to make it, and the cost will not include the labour of the bees and the time occupied in collecting or converting the food into wax.

In our next we hope to pursue this subject, refraining from descriptions of elaborate processes that might frighten the amateur, and hoping to make the way so simple and plain that an ordinary bee-keeper need not fail if he will only give it intelligent care and attention.

* Hive No. 1 is in the character of a selected hive, to be dealt with as if it contained a special breed of Ligurian, Cyprian, or other highly-valued bees. The advantage of utilising all its queen-cells preferentially will thus be apparent, apart from the time saved by their being in an advanced condition.

† It is possible that one or two of the stocks may not be sufficiently strong for the purpose, but that contingency must always be counted on, and does not affect the mode of proceeding. They must be dealt with later.

‡ Many would advise that No. 1 should be divided into as many nuclei as there may be available queen-cells in it, and to strengthen them with combs of brood from other hives, but experience has taught us to avoid as much as possible the mixing up of combs from different hives and the consequent risk of spreading disease.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Meeting of the Committee held at 446 Strand on Wednesday, April 6. Present, Mr. T. W. Cowan (in the chair), Rev. E. Bartrum, Rev. G. Raynor, Dr. Lionel S. Beale, F. Cheshire, J. M. Hooker, E. S. Wheeler, H. Jonas. There were also present Mr. Jesse Garratt and Mr. G. Allen, representatives of the West Kent Association.

The minutes of the last Committee Meeting were read, confirmed, and signed. Letters were read (1) from the Science and Art Department at South Kensington, stating that goods had been received from Messrs. Neighbour and Son towards the foundation of the collection of hives, &c., at the South Kensington Museum; (2) from the Rev. G. Proctor and Br. Joseph, acknowledging the receipt of the silver medals awarded to them by the Committee in recognition of their valuable aid to the deputation sent to Ireland last year.

Mr. Wheeler tendered his resignation as a member of the Committee, being about to leave England for China. A vote of thanks was passed to Mr. Wheeler for his services as a member of the Committee. Upon reference to the register of votes recorded for each candidate at the late election of the Committee, it was found that the Rev. F. T. Scott and Mr. D. Stewart were next in order, Mr. Scott having polled the largest number of votes. It was the unanimous opinion of the meeting that Mr. Stewart (having been a member of the Committee in former years, and most assiduous in his duties as such) should be elected. Mr. Stewart was therefore duly elected to fill the vacant seat.

A letter was read from the Honorary Secretary of the Caledonian Apiarian Society, soliciting the grant of the Silver Medal of the Association to be offered as a prize for 'Cyprian Bees' at their forthcoming Show to be held at Stirling. The Rev. E. Bartrum moved, and Mr. Cheshire seconded, 'That a silver medal be granted for the Stirling Show in accordance with the application.' (Carried unanimously.)

It was resolved, 'That Mr. Baldwin, the expert, and the Assistant Secretary, should represent the Association at the Derby Show on July 13 and following days.'

The Rev. G. Raynor moved and Mr. Hooker seconded,

'That the Chairman and Mr. Cheshire arrange a list of articles suitable for use in the Bee Tent and at lectures, and submit an estimate of the cost of the same at the next Committee meeting.'

A number of books were presented to the Library by Mr. Wheeler; and on the motion of the Chairman, seconded by the Rev. E. Bartrum, a unanimous vote of thanks was accorded to Mr. Wheeler for his valuable gift.

Mr. Garratt reported that he had reasons to believe that favourable arrangements would be made for an exhibition of Bees, Hives, and Honey, in connexion with the Bath and West of England Agricultural Show at Tunbridge Wells. Resolved, 'That a silver and bronze medal and certificate be placed at the disposal of the Committee of the West Kent Association, to be offered as prizes at the Tunbridge Wells Show.'

Quarterly Conversazione held at 446 Strand on Wednesday, April 6th, 1881. Present, Rev. G. Raynor, Rev. E. Bartrum, H. Jonas, R. A. Boissier, J. M. Hooker, T. W. Cowan, E. S. Wheeler, G. Allen, F. Cheshire, G. D. Clapham, G. Henderson, F. Lyon, P. E. Martin, &c., &c. The Rev. E. Bartrum was voted to the chair. The Chairman, in introducing Mr. C. N. Abbott to the meeting, stated that he had 'no doubt but that the paper about to be read by their friend, Mr. Abbott, would be one of the most instructive and entertaining that had been brought before the members.'

Mr. Abbott then proceeded to read his paper on 'The Hive for the Advancing Bee-keeper.'

The subject of inquiry this evening is one about which so much has already appeared in the *Bee Journal* under my hand, that were it not for its well-nigh inexhaustible nature, I could scarcely find a reason for your presence here to listen to me; for I fear you must be already weary of the repetition—the line upon line, and precept upon precept—which it is my ill fortune to feel compelled to impose upon the readers of that periodical. Fully aware of the peculiarity of the position I occupy, as Editor of the *Journal* on the one hand, and as the representative of a firm of bee-hive manufacturers on the other, I beg of you to permit me, by way of apology, to explain that I have not voluntarily sought to thrust myself upon you, nor did I select the topic on which I am about to inflict upon you the opinions which long experience, and correspondence, and personal communion with the best authorities on the subject, have forced upon me. That I am here is due to our esteemed Honorary Secretary, the Rev. Mr. Peel, whose absence through continued illness we all deplore; he made the request, gave me the subject, and named the day: and in gratitude to you all for the kind encouragement your presence affords me, I will endeavour to say the little I have to say in as few words as my limited ability will permit.

In investigating the subject on hand, the first question to be determined is, 'What is a bee-hive?' and I think the universal reply will be, 'It is a vessel intended for the habitation of bees,' to which I may add, that so far as the bees themselves are concerned, its shape and size are matters of indifference, provided it be large enough to contain them.*

The purpose for which bees were designed, so far as human sagacity can penetrate, is the fructification of flowers and blossoms, a subject which has already been ably dealt with before you, the storage and accumulation of food being incidental and a consequence of the instinctive impulse, which is largely shared by many animals, to provide for 'a rainy day.'* The bees' instinctive wisdom in accumulating the means of continued existence caused them to become the prey of man and led to their domestication, and we are all aware of the cruel method of spoliation to which for centuries they have been subjected, and which prevailed until of late even in this Christian country, when their honey was desired. The domestication of bees necessitated the manufacture of vessels to contain them, and for thousands of years their cultivation in hives, as a source of profit, has been the subject of earnest study and investigation. The shortness of the time at our disposal this evening precludes even an attempt to trace the improvements that have taken place from time to time in the construction of bee domiciles. But of late years the hive, as an aid to profitable bee culture, has engrossed much attention, and, stimulated by the action of the numerous associations that have been formed for the promotion of bee-keeping, the public have become deeply interested in the production of the best hive for use by advancing and advanced bee-keepers;† and this brings us to the subject for immediate consideration. In my humble opinion the best hive for the advancing and advanced bee-keeper is that which affords the best facilities for performing the various operations that are known to tend to increase the profit arising from the cultivation of the bees, with the minimum of interference with their natural condition and habits.

1. The brood-combs should be moveable and interchangeable; 2. The brood-chamber should be capable of expansion, contraction, and subdivision; 3. The hive should be capable of easy investigation in all its parts; 4. Every part of it should be arranged with a view to the prevention of useless labour by the bees; 5. It should afford no harbour for vermin; 6. It should afford facilities for the storage and removal of surplus honey, in the comb, and by the extractor, at all times; 7. It should afford ready means for feeding the bees at all times, without inciting to robbing from other hives; 8. In it the bees should be capable of protection from violent heat and cold, and from wind, rain, and snow; 9. It should be capable of easy ventilation, for the prevention of dampness within; and, 10. It should be inexpensive, and easy to make.

I have laid it down as a law to myself, that the groundwork of success in hive-building must be based on a due regard to the natural habits and instincts of the bees themselves. Let them have their way in every thing as far as it is possible to do so consistently, remembering that they are *under cultivation*. It is known that in spring bees have an instinctive desire to increase their population. The circumstances under which that increase proceeds most rapidly are also known, and as on its development depends the first source of profit to the bee-keeper, the hive should enable him to assist the bees to that desirable end. 'What!' says the 'let-alone' bee-keeper, 'assist Nature? Rather let Nature alone, and learn of her, for Nature is perfect!' To which, in a measure, I heartily assent. Nature *is* perfect, and the study of her laws affords the highest delight; but she teaches that we cannot gather grapes of thorns, nor figs of thistles, and we have Divine authority for cutting away branches that produce no fruit, and pruning the fruitful that they may bring forth more fruit.

But to return. In aiding the bees is exhibited the necessity for *mobility of combs* in a hive—for the economisation of heat, an essential element in brood-raising, the

* The experience of ages confirms this, bees having been known to fulfil all the purposes of their existence and to accumulate vast stores of honey, in rocky crevices, trees, castles, house-roofs, and church-towers; that they sometimes take possession of places untenable from outside influences does not, I think, affect the argument.

* As is well known, rats, mice, squirrels, dogs, and others will secrete the superabundance of food given to them, and with bees the propensity is a passion wisely ordained that they may live through a season (like 1879) when adverse weather renders the ingathering of supplies impossible.

† As a matter of fact, advanced bee-keepers can keep bees profitably in any kind of hive—improved hives are chiefly helpful through the facilities they afford for manipulation.

comb space or brood nest should be *contracted*. Presently it may be necessary to give increased comb space to accommodate the larger population, and then facility for *expansion* is demanded. It may presently be desirable to see if swarming is likely to occur, hence the necessity for easy *investigation* of every part of the hive. While the bees are doing profitable work, all is well; but if they have to take precautions to prevent robbing, and *the access of enemies*, by glueing all ill-fitting joints, by the abundant use of propolis, such labour is wasteful, and shows *faultiness of construction* in the hive.

As time goes on it may be immediately profitable to make a swarm—mobility of combs, capability of contraction, and easiness of investigation, are then all essential. It may be deemed desirable to raise queens for profit, the hive then should be capable of subdivision into nuclei. It may be thought more profitable to devote the bees to honey-gathering, hence facilities for *storing* it should be afforded; the vessels to contain it being easily applied and easy of removal. When honey has been removed, and at various other times, the hive should afford facilities for feeding the bees in such a way that stranger bees may not feel invited to the feast, and robbery ensue.

As winter approaches it may be necessary to unite the bees of several stocks, involving the necessity for mobility of combs and expansion and contraction of the brood nest. During winter, the necessity for compactness and warmth cannot be too much insisted on. By warmth, I do not mean the application of artificial heat, but that the hive should be capable of arrangement so that the heat generated by the bees shall be retained or conserved to the fullest possible extent; while it should afford the best facilities for ventilation.—(In the summer time the bees can ventilate the hive if change of atmosphere be needed—in winter they cannot do so.)

It will doubtless occur to some that a hive to contain all these requisites must be a very elaborate affair, that its construction would entail a serious outlay of time and money, and that its management involving so many considerations is beyond the ability of an ordinary bee-keeper. I have no doubt but that if a written description of the hive and its requirements were placed in the hands of a novice, he would be seriously puzzled, and would make many mistakes in attempting to make or use one. A novice in mathematics does not make the difficult problems in Euclid his first task: he first learns the properties of lines, angles, and curves, and paves the way to the 'bridge' over which so many have stumbled who have attempted to pass it without the preliminary knowledge necessary.

By the same rule, before attempting, with hope of success, advanced problems in bee-culture, the novice must master its rudiments, and when acquainted with the habits, instincts, requirements, and capabilities of the bee, he will understand the meaning of every word I have written, and will recognise the principles involved in my attempt to describe a hive for the advancing bee-keeper. In the manufacture of such a hive there is nothing beyond the ken of an amateur carpenter; no more, or more expensive materials are required in it than are needed in any other form of frame-hive; and its management subject to the premises given will be found most easy.

I am aware of the delicacy of my position as Editor of the *Bee Journal* that has had so large a share in effecting the revival of bee-keeping here, and am content to be judged by my words and acts in respect of it. I am also what is called a professional bee-keeper, in the sense that I keep bees for profit, and I do all I can to show others how to do likewise; and as the head of a firm that has, I think, done more than any other to popularise the moveable-comb system of bee-keeping by its inventions and productions, I am proud to consider myself a professional hive-maker, and readily acknowledge that I derive income from the sale of hives and bee-appliances, and that their manufacture is an industry affording income to many others. Such being the case, I find myself amongst those who are believed to be 'immensely in the background.'

With these facts present to my mind I cannot suppose that the hive I shall put before you will escape the severest criticism; but I wish to state, in advance, that it has been brought here to illustrate my meaning rather than as an example of perfection in itself; the more so as it is not a new hive made for the purpose; but is one that was exhibited at South Kensington last year; and its defects may have tended to the opinion above alluded to. Conscious of my position, I hope to avoid, as I have ever, with a full sense of man's fallibility, tried to avoid every form of dogmatic assertion; for experience has shown that writers having laid fixed lines, in some cases, spend the remainder of their life in defending *them*, and trying to prove every movement in advance of them erroneous.

Having stated the requirements of a hive from my point of view, I will endeavour to show that a simple hive may contain them. I have here a body-box measuring about 23 inches in length, and of the width and depth to receive Woodbury frames, of which I have brought only sufficient for illustration. The hive is double-sided, with dead-air space, between; the front and back are single, the floor-board, for convenience of carriage, is a fixture, but may be made moveable. It is, in fact, a very near approach to the Irish hive, of which a description has of late (December) appeared in the *Bee Journal*, and which also receives Woodbury frames. There are additional entrance-ways to this hive which the Irish hive does not possess, but which may be easily made in it. The frames may be of almost any pattern, but I very much prefer that they should have widened ends. The frames within it are of four patterns, either

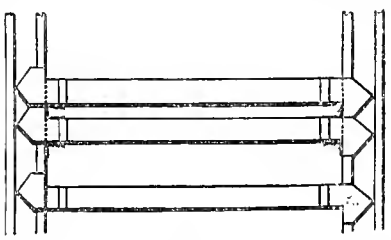

Fig. 1.

of which may be used. Those with distance-tacks were the first improvement on the notched rabbets, which, though a clever invention, are now almost universally ignored because of the impossibility of moving a frame laterally without first raising it, and often crushing the combs when attached to each other, or when crookedly built. The frames with distance-tacks were a movement in advance of German origin, first introduced into England by myself, as I believe, about 1871, the tacks being originally used at the top, and near the bottoms of frames.

They were, however, found to be inconvenient, and wide-ended frames were invented, and in one form or other I have the greatest reliance on them, and neither use nor recommend any others. Metal strips for frames to rest upon in lieu of rabbets were first brought out in England by Messrs. Neighbour and Sons at the International Exhibition, 1873, the frames then resting in notches cut into the zinc, involving the necessity for raising the frame before it could be moved laterally, and which was to my mind highly objectionable. The use of distance-tacks enabled one to dispense with the notches; and plain metal runners then came into use, and still have their advocates.

There are various opinions on the merits of tacks and

runners. I object to them particularly as commonly used, and would point out what I conceive to be a weak point in the arguments often used against me. An immense deal of trouble has been taken to determine the conductivity or non-conductivity of hive-walls, and though dead air was only a few years since considered the best non-conductor of heat, it is now 'in the background,' and walls of straw, chaff, cork-dust, &c., are in the ascendant. At the present time an immense deal of trouble is to be taken to make hive-walls retentive of heat, yet on the top of them, at the very point where the greatest heat should be, and the most pains taken for its conservation, the metal runner, the open frame ends, and the thinnest part of the hive-wall, are to be found. Supposing this hive-wall to be filled with perfectly non-conducting material, I appeal to the common sense of my hearers whether or not it can be of especial service when the heat can waste itself over the top, and through the thin wood outside of it, or into the roof space above? Wide-shouldered frames prevent all this. Objection may, however, be taken to such frames on the score, that they are liable to expansion and contraction. Such objection, to my mind, will only arise from those who are unable to allege any other. As arranged, and with the fact before us that bees are not particular to half a sixteenth of an inch in distance, which is more than the frames will expand or contract in a hive, the objection, in my opinion, goes for nothing.

It may be said that propolising will be greater with widened frames than with the others under notice. This I deny, there being less liability to propolise in the former than in the latter, and less actually takes place, except *theoretically*. The principle of widened ends is not a new one: it prevails in Italy and Switzerland, and has been in use many years, and in America it has crept into use, the frames in the latest hives—those of Van Deusen and Nellis being formed on a principle I have for years argued in favour of, so as to be in accord with the wants of the bees as expressed by themselves.

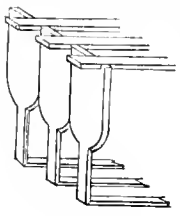

Fig. 2.

I may mention that hives sent by me to the Continent having wide ends have been highly eulogised, the ends being specially commended.

With such frames as those of Nellis, a hive more nearly resembles the natural bee-nest—there is no escape of heat over the wall or round the frame-ends to any greater extent than takes place in the natural nest. How different from the open bars, the metal runners, and the thin outside hive wall! With frame-ends widened all the way down, it is difficult to imagine a hive more easy of management for summer, for winter, for supering, for combs in rear, for feeding, for extracting, for queen-raising, or as a twin or triple hive. This is not a new whim. I have steadily kept the principle in view ever since the Giotto hive was introduced to this country by Captain Danyell in the pages of the *Field*. I did not like the construction of the Giotto, but felt sure its principles were worthy of attention, and that a well-made hive would be easy of management; and I have kept the idea alive in the *Bee Journal* to the present time. In 1876 a prize was awarded to Mr. Cowan for a hive of the Giotto kind at the Alexandra Palace Show.

It may not be generally known that the outsides of these frames are not propolised by the bees, nor are the lugs or ears upon which they rest. Taking this as a simple hive for ordinary purposes, we will introduce a swarm. We fit up our frames with foundation, determine which way the combs shall run, and put in the swarm, closing it up with the foundation-dummy. We shall now see as a defect in the narrow-ended frames that they permit the dummy to move out of an upright, through its only touching the frames at the top, and that any dummy, through not fitting the perhaps uneven sides of the hive, tempts the bees to use propolis in considerable degree.

Now let us try with the widened frame-ends; they touch each other closely; the dummy also touches *them* closely; there is no room for the use of propolis; and as a matter of fact, it is not used in appreciable degree. Enemies cannot get in. Supering can, of course, take place in the usual way. Elongation, or increase of the brood space, is easy, the frames all fit closely and touch firmly, and may be readily added, whether for a swarm or stock. Examination of swarm or stock is quite easy, every part of the hive being easy of investigation. Sections may be placed in the rear of the brood-nest with the greatest facility, without any expensive apparatus, and are capable of easy removal. Swarming may readily be practised; cutting out queen-cells also. The hive may be made a twin hive most readily, as shown. It can easily be made into a triple nucleus hive, or made to hold three swarms. As a single hive, it has special conveniences for the bee-keeper for feeding, swarming, &c.; and for wintering, it is particularly well adapted. On the subject of wintering a very great deal might be said in favour of either and all the improvements I have named on the metal runners and the distance-tacks. In an ordinary skep or box-hive the combs are attached to the top and partly down the sides, and there is no possibility of heat escaping freely from between the upper parts of them, or of circulation of air that will materially lower the temperature between the combs at this important point in the hive, and in very cold weather bees, in such skep or box-hive, can as it were bathe in the genial atmosphere they have warmed for themselves, and can keep up the temperature at little cost, because there is little or no waste of heat from the upper stratum to which it naturally rises, and which is the right place for the bees in winter.

With the open-ended top bars and frames, it will be readily understood that the heated air can circulate, and the heat be lost against the cold surfaces with which it can come into contact. The wide-ended top bars stop all circulation above the hive-walls, but do not prevent it along the face of the wall; and now that hive-walls may be made, it is said, almost non-conducting, little harm can arise in that respect, but there is a possibility of disadvantage in the openness of the frame-ends which permit circulation of the heated air from the bees around them. The American frames (the Van Deusen or Nellis) have widened ends as far down as the comb is usually attached, fig. 1, and all circulation between the upper stratum of air in the hive, and the hive-wall, is thereby prevented. The hive may be amply ventilated at the top, nevertheless.

For winter packing the frames can be put towards the centre of the hive with a comb of wood-foundation on both sides, and a straight tunnel leading from the entrance to the bee-nest will give the advantage of inner isolation from out-door influences during the time when such isolation is desirable. The bee-nest can then be packed round with approved material. Whatever may be said of the circulation that great heat * will cause to enclosed air in what should be dead-air spaces, it will be evident that the air in the cells of an empty comb cannot well circulate at all; and I am of opinion that there can be no better wall protection to a bee-nest than such empty comb offers, particularly when it is remembered that should breeding take place unexpectedly, the very wall itself is available for that purpose. Some objection

* Mr. Cheshire's experiments recorded p. 232, Vol. VIII. of *Journal*, do not carry conviction to our mind that the law of cooling in respect of water at 200° Fahr. applies equally to a cluster of bees whose highest temperature is never more than 100.—Ed.

may be taken to the frames running parallel with the entrance-way, as against the common practice of putting them at right angles thereto; a subject that need scarcely be discussed, seeing that in so many other countries frames across the hives are commonly to be found.

In Egypt, Japan, Italy, Germany, France, Canada, and America, the crosswise principle is largely used, and in this country the practice is rapidly gaining ground, as I very well know, and I have not had any reason to qualify my high opinion of its value. I had almost omitted to point out that by increasing the space between the closed frame ends and the hive's sides, which can be done by simply having the hive a little wider, there will be facility for additional protection of the frame ends at *a*, by the introduction of a mat or cushion of chaff, sawdust, cork, or cocoa-nut fibre, which can be inserted between, and pressed closely to the frame ends without difficulty.

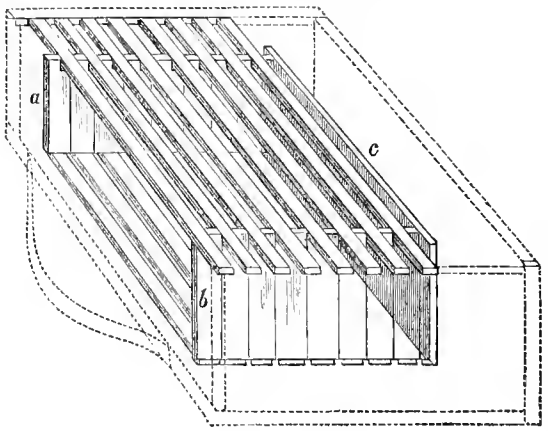

Fig. 3.

I fear I am exceeding the limits of your patience, though I feel sure I have not done justice to my subject, but if what I have said will be helpful in any respect towards the perfection we are, I am sure, all striving to attain in hive-building, as in everything pertaining to bee culture, I shall be glad to think my effort has not been in vain.

In conclusion, I would say I do not pretend to fix the size or shape which frames should be made; what will suit one locality, will not suit another; nor will I put any limit to the number that should be used; but I venture, with present light, to record my deliberate opinion that close ended frames are the best, because they are most nearly in accord with the natural condition of a bee nest, and I think they should be placed crosswise of the hive, because of the great facilities that arrangement affords to the bee-keeper. I think the hive should be capable of longitudinal expansion, as is the Combination and Irish hives of which I have written so much in the *Bee Journal*.

I would have the hive arranged that entrances could be opened at any part of it for convenience in twin or triple hiving, and for converting it to queen-raising purposes when required. I would use single boards only in its construction, with simple rabbets for the frame ends to rest on, all the means for distance keeping, dividing, winter packing, and feeding being used within the hive box, which need be a case only for holding it and its appurtenances. And with these ideas combined a hive would be produced in which everything that is known of bees or necessary in bee-keeping would be easy of verification or performance by the advancing bee-keeper.

[The discussion which followed will be reported in our next.]

BRITISH BEE-KEEPERS' ASSOCIATION.

Donors to Prize Fund.

	£	s.	d.
H. G. Morris, Esq.	1	1	0
G. Neighbour & Son	1	1	0
G. Allen, Esq.	0	5	0
E. S. Whealler, Esq.	0	10	0
Rev. J. L. Sisson	0	10	0
H. Bostock, Esq.	2	2	0
J. Bassano, Esq.	1	1	0
Rev. H. R. Peel	1	1	0
G. Walker, Esq. (jun.)	1	1	0

SHOWS AND BEE TENT ENGAGEMENTS IN 1881.

British Bee-keepers' Association.

May 25 & 26.—Oxfordshire Agricultural Show at Thame.

June 6 and four following days.—West of England Society at Tunbridge Wells.

July 7.—Horticultural Show at Aylesbury.

July 13.—Horticultural Show at Hawkhurst.

July 13–18.—Royal Agricultural Show at Derby.

July 26–August 1.—Annual Show B. B. K. A., South Kensington.

August 18.—Berks and Bucks B. K. A. at Maidenhead.

August 25.—Horticultural Show at Wantage.

August 30.—Horticultural Show at Long Buckby.

August 31.—Horticultural Show at Horsham.

Hertfordshire Association.

July 20.—Herts Agricultural Show at Hatfield.

July 22.—Waltham Cross Cottage Garden Show.

August 10 & 11.—Hertfordshire Bee-keepers' Association's Annual Show at St. Albans.

August 24.—Much Hadham Garden Show.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the members of the above Association will be held at the Exchange Hall in Grantham, on Thursday the 19th of May at 7.0 p.m., for the purpose of receiving the report, electing committee, and transacting any other general business connected with the Association. The drawings as set forth in rule 8 of the Association's rules will also take place, progress in the arrangement for the Annual Exhibition to be held at Louth in September will be reported.—R. R. Godfrey, *Hon. Sec.*

THE IRISH BEE-KEEPERS' ASSOCIATION.

The first meeting of the Irish Bee-keepers' Association was held on the 21st of April, in one of the committee-rooms of the Royal Dublin Society's New Buildings at Balls Bridge, Co. Dublin.

The proceedings commenced at twelve o'clock with Mr. Alderman Purdon being voted to the chair.

The chairman opened the meeting by making a few observations about the present state of bee-keeping in Ireland, and remarked that 'to-day a new era had commenced for this country in the knowledge and practice of bee-culture.'

The Rev. Canon Bagot said that he should like to state at that stage of the proceedings, how pleased the Royal Dublin Society were to aid the Bee-keepers' Association, and that they cheerfully voted the use of their committee-room for that purpose.

There were about thirty members present, including Revs. Canon Bagot, J. M. Aldridge, M. E. Holland, O.D.C., C. Nevin, P. Callinan; Sir Jas. Mackey, Messrs. Geo. Greer, R. Brown, Thos. Chambers, A. Turrettin,

D. Brown, J. K. Millner, E. D'Olier, jun., R. Saunderson, Brother Joseph, J. Traynor, and R. Sproule, Hon. Sec.

Mr. Sproule, having briefly stated the objects of the meeting, read letters of regret for non-attendance from Rev. Geo. Proctor, Thos. Lindsay, and R. Smyth, Colonel Nunn, and Messrs. Shaw and Edwards.

Rev. Mr. Aldridge then proposed a vote of thanks to the Royal Dublin Society for the use of the committee-room, and said that the thanks of the Association were due to Canon Bagot, for it was he who suggested to the Royal Dublin Society the allocation of the room, and he (the Canon) had also enlisted the sympathy of the Marchioness of Waterford to accept the post of President of the Irish Bee-keepers' Association.

The meeting then passed the following resolution:—'That the Irish Bee-keepers' Association be now formed, the objects being the advancement, by means of lectures, leaflets, &c., and by manipulations with living bees at bee-shows, of bee-culture in Ireland, particularly as a means of bettering the condition of the agricultural classes; the establishment of an agency in Dublin for the sale of honey the *bona fide* property of members; to instruct the bee-keepers in the most improved methods of increasing the quantity of honey harvested, and getting it of a finer quality, and in the most saleable forms.' The rules, founded generally upon the rules of the British Bee Association, were then adopted.

A long discussion took place upon Rule V., which regulates the rates of subscription to the Association. Canon Bagot urged that a difference should be made in the amount of subscription in the case of tenant-farmers and cottagers. As the Association was formed almost expressly with the object of benefiting those classes, and the proposed rates of subscription, if adopted, would exclude them from the benefits of the Association, as they could not afford to pay 5*s.* subscription, he (the Canon) would therefore move as an amendment, 'That the subscription for tenant-farmers should be 2*s.* 6*d.* and for cottagers 1*s.*'

Mr. Greer (of Dungannon) and Mr. Sproule strongly objected to any difference being made in the amount of subscription for membership, because they thought that admitting those classes as members of the central or parent Association at such a low rate would tend to prevent the formation of county associations. Eventually the meeting passed Canon Bagot's resolution.

The following were elected as the Managing Committee for the present year: Lord Ardilaun, Revs. J. M. Aldridge, Canon Bagot, Hon. Richard Bellew, Robt. Brown, Rev. P. A. Callinan, Geo. Greer, Very Rev. M. E. Holland, Brother Joseph, Rev. Thos. Lindsay, J. K. Millner, Colonel Nunn, Hon. Mr. Pollok, Rev. Geo. Proctor, and Alderman Purdon. Sir Jas. Mackey was elected Hon. Treasurer, and Mr. R. Sproule Hon. Secretary.

The meeting resolved to hold an exhibition of hives, honey, &c., and to have manipulations with bees, during the Royal Dublin Horticultural Show in August next.

The meeting, on the motion of the Rev. J. M. Aldridge, resolved that the Irish Bee Association should only recognise *two* sizes of bar-frames for frame hives, viz., the Woodbury frame, measuring $14' \times 8\frac{1}{2}'$, *outside* dimensions, and the Abbott Standard frame, measuring from end to end at top $16\frac{1}{2}'$ and at bottom $15\frac{3}{4}'$ and the depth of frame 10', *outside* dimensions.

The Rev. J. M. Aldridge suggested that the Association should recommend that each member should become a subscriber to the *British Bee Journal*, as it was the only means of intercommunication that the members of the Association had at present.

The Hon. Sec. was requested to write for specifications and prices for a bee-tent, and also to the principal makers of bee appliances for donations as prizes, &c.

The usual votes of thanks having been passed, a very successful meeting was brought to a close.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.

The following prizes are offered at the Portadown Dog, Poultry, and Pigeon Show, to be held on Wednesday and Thursday, the 4th and 5th of May next. Open to all, no entrance-fee. Entries received up to ten o'clock on Wednesday.

1. For the best and cheapest complete hive, on the moveable-comb principle, suitable for cottagers. Any number to be supplied at the price named. First prize, 20s.; second prize, 10s.

2. For the best exhibition of hives and bee-appliances most applicable to modern bee-keeping; no two articles to be alike. First prize, 20s.; second prize, 10s.—G. Greer, *Hon. Sec., Dungannon.*

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES' ASSOCIATION.

Tunbridge Wells Show.

At the moment of going to press we learn that arrangements have been made for the holding an Exhibition of bees, honey, hives, and appliances, &c., at the above Show, which will commence on Monday, June 6th, and extend over the four following days. The British Bee-keepers' Association assume the direction and responsibility of the Exhibition assisted by the West Kent Bee-keepers' Association.

Further information may be obtained of Mr. J. Garratt, Hon. Sec., West Kent Bee-keepers' Association, Hockenden, St. Mary Cray, who will supply schedules of prizes and entry forms.

BEE ASSOCIATION FOR HARLOW.

On Tuesday the 5th inst., at a meeting of bee-keepers and others, Mr. James Scruby, jun. in the chair, it was resolved to form a Harlow Bee-keepers' Association connected with the Essex or the British; as our Harlow friends did not see any advantage to be gained by union with any other association. The minimum subscription was fixed at 1*s.*, and Mr. Baldwin, the expert, engaged to deliver a free public lecture on bees and bee-keeping at Harlow on the 26th inst.—*Communicated, April* 11, 1881.

NATIONAL EXHIBITION AT MILAN.

I shall esteem it a favour if you will kindly allow me to make known the fact, through the columns of your valuable *Journal*, that a great and comprehensive National Exhibition is to be held this summer at Milan, in which Apiculture will be thoroughly represented. Of course, much must necessarily depend upon the season, but judging from the supreme efforts which each individual bee-keeper is called upon to make for the occasion by the various Bee Associations now existing in Italy, it may well be inferred that the forthcoming Exhibition will be a faithful exponent of the recent development of Italian apiculture and its resources.

At the same time, I am pleased to be able to report that the rational cultivation of the honey bee is making great strides in that country, so much so that of late the number of apiarians keeping two, three, and even four hundred stocks of bees has become very considerable. Nor is this happy progress of apiculture limited to the southern, central, and other provinces enjoying that sublime climate for which Italy is so deservedly famed, but the same may now be said of even the most northern districts, the natural barriers of which are the impassable Alps. As an instance of this kind of enterprise, I would just mention the case of Signor Giacomo Bertoli, of

Varallo, an intimate friend of mine, who, besides attending to his establishment in town, has of late years established four apiaries in Valsesia, now containing about twenty-five stocks each, but all planned to take four times as many as soon as his circumstances will permit.

Mr. Bertoli is a great advocate of migratory apiaries, and he carries out this plan under much greater difficulties than can be imagined by those who, in this land of good roads, send their bees to the moors.

At a certain season of the year Mr. Bertoli sends a large number of his stocks to Alagna, one of the highest inhabited points towards the glaciers of Father Monte Rosa. To do this, each comb must be made perfectly secure, and then the hive carried uphill for days on the shoulder of a woman, through almost impassable paths; but at this altitude almost all the vegetation is aromatic in a high degree, a circumstance which readily accounts for the beautiful flavoured honey he obtains from his bees. I may add that this honey is much appreciated by French confectioners and connoisseurs to whom Mr. Bertoli sends as much as he can possibly spare at almost fancy prices.

In the lower districts, where, in consequence of the heather and of the numerous chestnut and walnut trees grown, the honey is far from being so delicious, Mr. Bertoli's specialty is queen-raising; and such is the care and attention which he bestows upon this branch of culture that the few he sends to this country always meet with the greatest approval for their unquestionable superiority.

There would be several other instances of apicultural enterprise of this nature not less remarkable than Mr. Bertoli's, but I must not trespass further upon your valuable space.—JOHN CAMASCHELLA, *Hon. Representative of the Central Bee Association of Italy*, 10 *Derby Villas, Forest Hill.*

THE FIRST INTRODUCTION OF HUMBLE BEES INTO NEW ZEALAND.

'The two queens, the survivors of a shipment of eighteen consigned to Mrs. Belfield, were turned out on Mr. Bristol's farm on Saturday morning. They were strong and healthy, and flew away briskly against the wind. Being liberated amidst clover fields, there is every chance of their doing well. Some years ago the present Premier of New Zealand attempted the introduction of these useful insects, but unsuccessfully, the last of the creatures dying when within ten days' sail of our coast.

'Not being aware of any successful attempt at their acclimatisation being made before, we believe that the pair of queens set free on Saturday have the honour to be the first of their kind in this country. The thanks of the farmers are specially due to the lady, who, when in London about three years ago, saw Mr. Alfred Neighbour (a somewhat celebrated apiarian at home), on the subject of sending humble bees to New Zealand.

'Mr. Neighbour took up the matter *con amore*, and promised, when opportunity offered, to send out a consignment, at the same time pointing out the risk attending such a shipment. That gentleman spared neither trouble nor expense in endeavouring to make the venture a success. In the first place he employed an agent in a district in Scotland, where the bees were unusually plentiful, to mark down the nests in the summer, and then, in the early part of the winter, each nest with its queen was carefully dug out, and placed separately in a nest of moss in a box for export. Being in a state of torpor when taken from their Scottish home, it was a *sine qua non* that they should continue in this state the whole of the voyage to the antipodes; consequently they were placed in the ice-house of the *John Elder*, one of the Orient line of steamers.

'On arrival at Melbourne the box was handed over to the captain of the *Arawata* to carry on to New Zealand.

'From the appearance of fully one half of the dead insects, there is every reason to believe that they were alive on arrival at the Bluff, but unfortunately a delay in their transit here took place which was fatal to all but two. The telegram to Mr. Belfield telling of their arrival was dated the 31st of January, at the same time intimating that the *Arawata* came in on the 26th. Yet further delay took place, and the interesting strangers did not arrive in Timaru till the 3rd of February. Mr. Hislop, late of the Timaru domain, kindly took charge of the box and opened it out with the results above stated. To our readers who are not farmers, and who may be ignorant of the value of humble bees, we may state that their great usefulness lies in impregnating red clover, their long proboscides enabling them to reach the pollen of the plant.'—*From the Timaru Herald, Monday, February 7*, 1881.

VICEREGAL HONEY.—MODEST COMMISSION.

Yesterday in the Court of Conscience, before Mr. Bolger, T.C., John Kearney, of Miller's Court, dealer in honeycomb, was sued for 15s., alleged to be due to Andrew Butler, Vicar Street, for 'commission.' Mr. Keighron appeared for the plaintiff, and Mr. Harrisson for the defendant. The evidence showed that the defendant was enabled through the plaintiff to sell at the Castle, for the use of the Viceregal household, 29 lbs. of honeycomb, for which 2*s.* 6*d.* per lb. was paid. The litigant attended at the Castle to carry out the transaction, and after defendant received the price of the honeycomb he handed plaintiff fourteen shillings. The plaintiff insisted that his 'commission' on the transaction was one shilling per lb., and as the defendant refused to pay, the case now came into court. The defendant denied that he made the compact alleged. After hearing both parties, Mr. Bolger held that the plaintiff had established his case, and he gave a decree for fifteen shillings.—*Irish Freeman*, Mar. 23.

BEES AND BEE KEEPING.

On Thursday, March 24, at the lecture-hall, Mr. G. Walker, of Wimbledon, gave an interesting and instructive lecture on the above subject. Mr. Walker was formerly on the committee of the British Bee-keepers' Association, and was therefore in a position to give valuable information on the matter. The object of this Association was stated to be to teach cottagers and others the humane treatment of the honey bee, this part of the lecture being strongly dwelt upon.

It was mentioned that until 1873 bee-keeping in England was at a low ebb; Germany, France, America, and Russia, were very much in advance of us, which ought not to have been especially when the advantages of keeping bees were considered. If properly managed they gave large profits and quick returns. This was particularly the case when the frame-hive was used in lieu of the straw skep. The difference between these was fully explained by means of diagrams and models. The important operation of transferring the contents of a straw skep or common box hive to a bar-frame moveable-comb hive was detailed, as also was the method of putting in wax foundation. The putting on and removal of supers, the feeding of bees, queen-cages, and excluders, in fact, all the various branches of bee culture, were exhaustively discussed, and useful hints were given to persons who intended to commence the 'industry.' The lecture was illustrated by diagrams, hives, bee furniture, &c. (some being kindly sent by Messrs. Abbott, of Southall), and these added in no small degree to the interest of the lecture. The proceeds were to be given to the Cottage Hospital.—*Surrey Comet*, Mar. 26, 1881.

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

CHEAP HIVE FOR AMATEURS.

I send you a sketch and description of a very cheap hive, which some of your readers who make their own may try their hands upon. It is made out of two and a half American cheese-boxes, which cost me fourpence each; one 15 in. in diameter serves for the inner skin, and one of 16 in. diameter for the outer skin of the hive. (The usual depth of these boxes is from 9 to 10 inches.) The inner

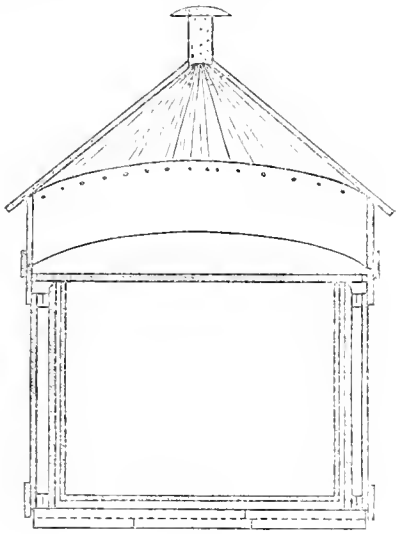

Fig. 1.

skin should be three-eighths of an inch higher than the outer to form the feather edge on which the frames are to rest. The two skins are kept apart by a double hoop $\frac{3}{4}$ of an inch wide, placed at the top and bottom. These may be made by cutting in half the hoops of the box, and as they are usually $\frac{1}{4}$ of an inch thick, they will keep the two skins $\frac{1}{2}$ an inch apart, and thus form a sufficient air space between them. As strong a hoop as can be got from the boxes and lids must be put round the hive, standing 1 inch above the outer skin, and another at five-eighths of an inch below the outer skin. Room will thus be given for the thickness of the frames and quilt above, and the floor-board will be overlapped below, and wet or rain excluded. The floor-board is made from the box-lid and bottom. These are usually in three pieces, and when nailed together should be crossed under side pieces. Of these the middle one should project, to form the alighting-board; and the deficiency supplied from any piece of wood at hand. The floor-board will thus be double. The upper thickness is cut away sloping upwards to form a sunk entrance into the hive. The floor-board is represented in its place in fig. 1, which represents a section from side to side with one of the middle frames in position. The hive has a cover made of half a box, 5 inches in height, and over this a conical top made of paper-felt, painted and fastened with thin copper wire to the wooden part; the flight-hole, porch, and slot for slides or doors, which are made of strong tin or zinc bent to shape. Fig. 2

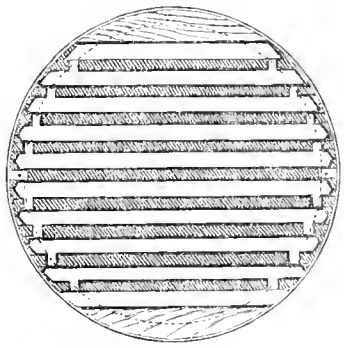

Fig. 2.

shows the arrangement of the frames, ten in number. Half of them have distance-blocks towards the front and half towards the back, both blocks being on the same side of each frame. In the centre are two moveable blocks attached to the side of hive by a thin but strong piece of string. When manipulating they are lifted out, and thus room is given to move all the frames. The whole cost of the materials, including paint, panel-nails (screws, if any), and putty, is about 2*s.*, and certainly does not exceed 2*s.* 6*d.*; but I must add that there is a good deal of work in the hive, and it requires much nicety in fitting, though not more than most amateur carpenters are equal to.

The result is a round hive, which in shape corresponds with that of the cluster of bees, and I think is dryer than the square hives, in the corners of which moisture is apt to be condensed; and, secondly, is much more shapely and ornamental in a garden, and equally adapted for carrying supers of any kind desired.—J. H., *Vale of York.*

DELAYING SWARMS.

Having some hives standing in the country where I can only visit them about once a-week or less often, I have been considerably exercised as to how to preserve my swarms from loss. The following has occurred to me as possibly a way; but what do you think? I propose making a tunnel of excluder zinc from a full hive to an empty one (furnished with combs or foundation sheets) so that the bees can get in and out through the perforations; but in the event of a swarm leaving, her majesty must follow the tunnel into the other hive, where she will, I suppose, stay; if not, she must return to the parent hive. When I visit my apiary and find this has happened, I should, of course, separate the hives and remove the tunnel, so as to allow the young queen to get out.

With regard to peameal, I cannot get my bees to accept what I buy at shops, and never have been able, although I have offered it every spring for some years.—F. LYON.

[The idea is ingenious and worthy of trial, and we have no doubt but that it would as often be successful as not. An Abbott's drone-trap would not make a bad swarm-catcher. It is certain capture to drones that venture out of the hive, and by the same rule a queen would be caught in attempting to leave with a swarm, which latter would cluster on the drone-trap, and could be hived at evening. These suggestions, one arising out of the other, may be helpful in certain cases.—ED.]

QUEEN-RAISING IN NUCLEI.

On reading your April remarks on queen-raising it struck me it would perhaps be of use to tyros to give my experience—not as directory, but as a warning. In June last I removed from a strong stock-hive a Ligurian queen with small colony in a box, with three Woodbury frames containing brood, eggs, and honey. She was taken to a spot two miles off. Three queen-cells were left on different combs of the parent hive. Two were, as before, formed into nuclei. The work was perfectly successful. One of the young queens was given to a black stock that *would* swarm. She remains and multiplies rapidly. The other two were to remain in their little domicile till after the honey harvest. Then my hives were brought home and set in their winter positions, the nuclei being amongst them. For some days after, the two handfuls they contained were subjected to the fiercest persecution from wasps and bees, though the entrances were reduced to the narrowest limits. Heedlessly the strife was allowed to go on, as it was not convenient at the time to do any transference.* The consequence was, that though both the queens had sealed brood and a bountiful store they took to flight, and forced an entrance into other hives accompanied by their followers. They all perished. The poor queens were hugged to death.—J. G. C., *Bruce, April* 20.

DRY SUGAR FOR BEES.

Herewith I send more particulars regarding the bees I fed in autumn with ½ lb. of syrup and a block of dry sugar cut off the end of a sugar-loaf. It has proved to my entire satisfaction that bees *can* live on dry sugar. To-day, March 17th, there were bees in three seams of combs and quite lively, and the queen all right; but I *must* say that they have not bred, so I forward the remains of the sugar for your inspection, though I have no doubt it would have kept them more than a month longer. They have consumed 1¼ lb. only. There is no trace whatever of any waste on the floor-board, the combs were perfectly dry. I do not pretend to be able to show scientifically my difference of opinion *to yours* that bees cannot consume dry sugar. When I took the cake off the bees were clustered in it quite full and were gnawing at it, though it was perfectly dry and hard. It may be that sugar is something like salt, when the atmosphere is moist it may take up a measure of moisture. Without going so far as to say it must be moistened by the exhalations from the bees' own bodies, I think myself that it is quite likely that is the cause. Like 'J. C.,' Query No. 374, I have repeatedly noticed that sugar-bags '*give*,' as we term it, or go damp with certain changes of weather.

Another stock I transferred into a 1-inch Woodbury rough hive holding six frames, four being filled with empty comb and two with about 1 lb. of sealed syrup in them, and on the top of the frames a block of 2 lbs. of loaf sugar as before; they have done equally well. I examined them several times during the winter and always found the bees gnawing away at the sugar. I have examined them to-day, and found the whole of the 2 lb. lump of sugar consumed, and not a particle of it on the floor-board. They have a fair amount of sealed brood, they have not much food left, so I have fed them with a little syrup to-night, and shall continue to do so as they require it.—A W. B. K., *Weston, Leamington, March 17th.*

P.S.—On Saturday, the 19th March, I opened the stock that I took the dry sugar from, and I found after the second or third day's syrup feeding that the queen had been laying. There was a patch of eggs half as large as my hand.—A W. B. K.

PATERSON'S HORIZONTAL OCTAGON HIVE.

I have had an opportunity of observing Mr. Paterson's (Struan) horizontal octagon frame hive. Its advantages, after such a severe test as we have had during this winter, are as follows:—The octagon frame can be adapted to any kind of hive used in supering, and can be supered from the side or top. Mr. Paterson's ready ingenuity has enabled him to plan a simple mode of converting strips of wood into octagon frames in a remarkably short time. The wood is inserted in a mould and sawn off to the required length, and which at the same time gives the necessary angle, then the eight pieces are placed on a frame which keep them together until they are nailed, when they are ready for use, after squared pieces of zinc or tin are affixed for their suspension. Thin slips of wood are also inserted into grooves on the sides of the frames as when seen in the hive, thus keeping the proper space between the frames, preventing a draught, and affording additional protection to the brood. Mr. W. W. Young (Perth), who is a great enthusiast, and an expert apiarian, has had these hives in use, and his testimony endorses my own opinion. Mr. Pratt (Kirkcaldy) also says that the bees have wintered better in the octagon than in any other hive he has. Mr. Paterson modestly declined to make his name public in respect of his invention, further than has been already reported to the *Horticultural and American Journals* in 1879, but has reluctantly consented to my giving you an outline of it.—A PERTHSHIRE BEE-KEEPER.

[With the foregoing was a sketch of an octagon frame, described as 15 in. × 15 outside and 14 × 14 inside measurement. There was also considerable assertion, that we have not space for, but no description of the hive or its working, which we would most gladly have welcomed.—ED.]

* It was a great mistake not to remove them to 'the spot' two miles off when the full colonies were brought home. All would then have been well.—ED.

MEDICINAL PROPERTIES OF HONEY.

At my age (sixty-five) I don't want my blood diluted; and I find that a glass of whisky-toddy, sweetened with honey, is one of the finest tonics imaginable. According to Samuel Purchas (*Politicall Flying Insects*, page 171), Vigerius 'cured a Horse stone blinde with Hony and Salt, and a little crock of a pot mixed; in less than three daies it hath eaten off a tough filme, and the Horse never complained after.' Why should he?

We are greatly indebted to Mr. James Bruce. A few months ago he showed us how to fill our chests with gold, and now he tells us how to empty our chests of *Trichinæ*. From the bottom of my heart—the lowest depth of my chest—I thank him. There has been, since Christmas, a gnawing and fluctuation in that part. I abhor those worms—my honey-plaster is ready. I retire to my chamber and—apply.—WALLACE.

EARLY DRONES.—TWO QUEENS IN ONE HIVE.

Early in August last I purchased a Ligurian queen to replace a very poor English queen in one of my hives. She proved to be very prolific, and speedily raised the condition of the hive, and I looked forward with large hopes to the coming spring. I overhauled my stocks early in March, and found all in good condition, with the exception of one which had been off 'on the drunk' at a neighbouring public-house late in the autumn, and had consequently suffered from dysentery. In none of the hives, however, did I find brood, excepting in the one with the introduced Ligurian queen; and here I was astonished to find several young drones, a few sealed-up drones in worker-comb, and a large patch of eggs, laid as regularly as could be desired. Three weeks afterwards I again examined this hive, and to my disgust found that at least five-sixths of the brood were drones. The worker-bees were mostly hatched out, and were crawling over the combs; some of the cells containing drone-brood were torn open, showing the white half-formed bees, but the greater number were perfect. I resolved to leave them alone, as I considered the drones, unless killed by the bees, would act beneficially in helping to keep up the heat of the hive at a cost of a little syrup only.

Another fortnight has elapsed, and to-day I again opened the hive. The first thing (or things) I saw were two queen-bees on the same comb within one inch of each other. The old queen was easily distinguished by her damaged wings and her slightly thicker body; otherwise there was nothing to choose between the two. The question now arises, shall I leave them alone (?), and trust to the new queen being fertilised by one of her own brothers, or shall I destroy one or other of the queens? One of the most interesting points in this case is, that all the drones, although apparently of good size and physique, have been bred in worker-cells, and these, I understand, are considered useless for fertilization. Unless I hear from you to the contrary, I shall wait the course of events, and carefully watch night and morning the entrance to the hive, to see, if possible, if either of the queens or the drones are killed and turned out.—A. R., *Douro Place, Wellington Road, Handsworth, Birmingham.*

[This is one of the cases in which it must be averred that bees do nothing invariably. Nevertheless, it seems that the bees became aware of the failing power of the queen, and caused the forthcoming of another, which, from the state of the season, has probably not been fertilised; hence, as is sometimes the case, they tolerate the presence of each other in the hive. It is difficult to assign a reason for the prolific queen of August last becoming a drone-breeder so soon after, if she be such, and it will be quite worth while to watch the outcome of the phenomenon.—ED.]

WINTERING IN YORKSHIRE.

I think it may interest you or your readers to give my experience of wintering bees in Yorkshire in wooden hives. I may say, first, that a hive with ten Woodbury frames is large enough for any part of Yorkshire. We do not get such honey harvests here as you do in the south, even if we are near the moors. I have only had the wooden hives three winters, and very severe trials they have been for the hives. The first winter in my ignorance I filled the hive-covers with hay, and the result was dampness, and of course dysentery: the hay prevented the circulation of air over the quilt. The next winter I did simply nothing; and although the hives had each two swarms put in them in the summer (!), and were again doubled in the autumn (making four swarms in each hive), there were very few bees in any of them the following spring, and they required the greatest care to make decent stocks of them.

The scarcity of bees would, of course, be greatly caused by the previous wet summer, which stopped them breeding with me in July, and no amount of gradual feeding would make them start again. [Exactly our experience and teaching.—ED.]

This last winter my bees have kept splendidly. I never had them so strong even in skeps. There was only one swarm put into each hive last summer. All I did last autumn was to remove two combs and put in a division-board to confine them to the remaining eight combs. I did not put any end slips; and from this experience I should consider them unnecessary. Eight Woodbury frames seem to me to be the correct space for wintering. I left the usual summer quilt on, with no further protection over it.—A. J. H. WOOD, *Galphay, Ripon.*

SUCCESSFUL BEE-KEEPING.

I promised at the beginning of last year that I would let you know how my bees prospered. I had two hives sent down to me in the spring. They were both fairly strong stocks in 10-bar hives. They began honey-making at about the middle of May, and continued to do so until the middle of September. At the close of the season I calculated that I had taken over 200 lbs. weight of honey and comb. Most of it was perfect honey, in fact, none was what I could term second quality. I gave away a great deal,

sold nine pounds' worth for charities, and have used and am using the remainder still. I keep my bees in a small nursery garden on the outskirts of the town. All this honey, with the exception of a small quantity from the buttercups at the end of May, and French beans in September, was collected from the white clover.

I consider this a wonderful success; and it was most unlooked for, since there is no heather within reach. You may like the story of my management of them shortly. I could not spare much time for watching and experiments, so I tried to prevent swarming by giving abundance of room. On June 1 or 2 I drove a swarm out of the strongest of the two hives, and shortly after cut out the royal cells, with one exception. Then I put 10-bar empty hives at the top of the two old ones. My plan was from that time to visit them once or twice a-week and take away the full combs, and put empty frames in their place. The swarm soon filled their box, and then took to sectional supers. They filled a dozen of these before September. I had a little trouble with them now and then. Once the swarm of June 1, sent out a maiden swarm. I was luckily in the way, and returned them. Again, one of the others threatened to swarm; but I stopped them by killing their queen, and destroying most of the royal cells.

I used an extractor upon most of the combs of the stock-hives at the end of August. This was hard work, and not altogether successful. The honey was nearly as thick as glue. It required almost superhuman efforts, with much damage to my skin and the surrounding furniture from the occasional stopping of the revolving engine to dislodge the honey. The weather was intensely hot, and much-continued muscular exertion I found very exhausting. The work was only half done after all. I suppose that there is no dodge for making such thick honey leave the cells. The thin stuff flies out quickly enough. I finished my bee operations for the year by joining the bees of one hive that seemed to be queenless with another; and so I ended the year, as I had begun, with two hives. I congratulate myself that I got over the feeding business, which is always a great worry, with the least possible amount of trouble, and quite satisfactorily. I recommend the plan to all who, like me, dislike trouble. For the sum of 2*s.* 6*d.* I got a tinker to knock up two square tin boxes, with a large hole and funnel-passage in the centre of each that came not quite flush with the tops of the outside walls. The boxes I placed at the top of each hive, with an opening in the quilt corresponding with the bottom of the tube. The open tops of the tins were covered with a sheet of glass. Then I filled up the boxes with syrup, and the bees soon came up the passage and scattered over the floating planks that covered the surface of the syrup. The tins hold about 8 lbs. of syrup each. In two days I repeated the dose, and then my feeding for the year was over. This answers admirably for quick autumn feeding, and the saving of trouble is enormous.

My time is rather precious; but if you care for more from me I could give you my experiences of triangular frames last year, and also the account of a hive that was queenless, I believe, during the whole summer.—S. Edward V. Filleul, *Caprera Terrace, Plymouth.*

[We shall be glad to publish every experience that may be helpful to stumbling brethren in the bee world, particularly from authenticated sources. We know of no extractor that will remove honey that is 'as thick as glue,' but think there must have been something to make it of that consistency beside white clover, which is generally easy of removal.—Ed.]

BEE GLOVES.—A NEW SUGGESTION.

Stings affect me much, and in common with many bee-keepers I am obliged to wear gloves. I think you would confer a favour upon many if you would give your advice as to the best kind to use. India-rubber gloves are very hot and too thick. I have generally used good leather driving gloves, but find that the leather seems to be very irritating to the bees, especially when once it has received the poison of the stings. Evidently, also, some kinds of leather are much more irritating to the bees than others. To one of the gloves I had last year I had a new thumb inserted of a different kind of leather, and it was very remarkable how this piece of leather (leather from a common garden glove) incited the wrath of the bees. I have seen them regularly attack it, and I have had dozens of stings in it when the rest of the gloves hardly had one. As such is the case, it strikes me that it would be possible to dress one's gloves with some preparation that would have a soothing rather than an irritating tendency; or, at all events, it seems certain that some kinds of gloves are preferable to others. I must wear gloves, but I hate to irritate the bees.—F. G. Jenyns.

[India-rubber gloves afford good protection, and the bees are averse to stinging them, but they are expensive and most disagreeable to wear, and hence are objectionable. Leather gloves from their odour, original or acquired, are particularly offensive to bees. Saturation with honey mitigates the evil in that particular, but renders them uncomfortable to wear, hence leather is not in favour. Thick woollen gloves are protective, because the bee-stings cannot reach through them, but being fibrous the bees' feet get entangled, and then become furious, hence *they* are not commendable. But supposing the fibrous woollen gloves were covered with a pair of non-fibrous cotton or linen gloves, we question if there would be a single objection to them. Though thick they would be easy to work with, and, being ventilating, not uncomfortable to wear. A still further means of protection from the sting-poison has occurred to us while writing this. Bees hate to alight on wet surfaces—their poison is intensely acid (*pace* those who believe it to be alkaline) and most irritating when injected into a wound, and the acidity is most difficult to correct under that phase. We would therefore suggest that thick, non-fibrous, ventilating, gauntleted gloves be worn—and that they be kept wet while in use. It will be evident in such case that at the worst the sting-poison will be much diluted ere the sting can possibly enter the flesh, but if the gloves be wet with an alkaline solution, we question whether the poison would not be robbed of its virulence ere it reached the flesh, should the bees sting through them. Water, in which a lump of lime has been slaked, would not be injurious to the hands; but who will prescribe a diluent that will soften and whiten them? Happy thought! ladies will then have additional reasons for becoming manipulators.—Ed.]

WIDE-ENDED FRAMES AND DISTANCE-PINS.

I was much interested in reading the discussion in your last two numbers respecting Mr. Lyon's cheap hives, and hope it may be useful for the purpose intended, and encourage cottagers to use frame-hives. For myself I prefer the round ones I described to you, though no doubt they require much more fitting and labour than a square box ready-made. I was surprised to find that any one should still advocate distance-pins instead of solid wooden stops. The latter are, to my mind, far superior to any kind of pin or tack, as they shut in the top of the hive, and when the quilt is laid on prevent draughts and escape of heat at the sides—a great thing in winter. The objection that wooden stops swell and fasten tight the frames is groundless. If well-seasoned wood is used they will not swell; but supposing they do, this may be entirely prevented by dipping the ends of the top bar of the frames (before they are put together) in a composition of shellac dissolved in pure naphtha. It dries hard very quickly, and is quite impervious to wet. With a larger quantity of shellac it makes an excellent glue, and I use it for all purposes where glue is wanted, as well as in making frames. The weather here continues very cold. We have had eight and ten degrees below freezing several nights during the last ten days. My arabis is not yet in flower. It has been much cut, and the leaves blackened and killed by the frost. The willow palms are only just beginning to come out. Pea-meal, therefore, has been in much request.—J. H., *Strensall Vicarage, York, April 8th*, 1881.

BEES UTILISING COMB CHIPS.—NORFOLK ASSOCIATION.

I am much obliged to you for your hints on feeding my bees and intend to practise them for the future. It much surprised me to find you were unaware that the bee utilised the comb when broken up into fragments. I have seen them take it up in their mouths; but more than that, when laying it under the hive cover, with the feeding-hole open, they have taken it and built the comb through the feeding-hole, leaving just room for a bee to pass. I had one or two of my outside frames not furnished with cells, and I thought they might require it for building up, to save the trouble of making it.

I do not find they take the pea-meal very readily, having laid it much about. One hive I have laid it under the top cover and allowed them to take at their pleasure safe from rain and wind, some wax and some pea-meal, but the wax goes the fastest. May it not be they are building instead of breeding? The hives seem full of bees, generally, some laying outside even in this cold weather.

I am very sorry we have been unsuccessful in forming an association for Norfolk. Mr. Booker-Hill, who first proposed it in your *Journal*, attempted it, and I immediately responded to his invitation, which was the only response he received. Surely Norfolk men must be of a different stamp to what they were in Nelson's time, for they sadly fail *now* in doing their duty. But I hope yet to be able to form one, as we shall be under great disadvantage apart from other counties. The better way would be to canvass for it whilst attending the various exhibitions around us. I hope you will stir up our county members that they may come forward. I am glad to hear your matter is so increasing as to more than fill your *Journal*. I cannot but wish you success in thus presenting so much of interest for your readers.—Geo. Ringer, *Walcot Green, Diss, April 8th*, 1881.

[We are never so positive in regard to bees as to aver that they *never* do a thing because we have not seen it done, nor that they *always* do what we have seen. As a rule when bees pick up bits of comb, they carry them out of the hive and throw them away. When they nibble away parts of comb in the body of the hive, the material, whether pure wax or the mixed coverings of brood-cells, being warm and in their mouths, they will use it again and again, but we have never seen a bee pick up a bit of cold wax and act with it as if about to use it again. It is quite common for bees to build up through the feed-holes in the tops of hives, they prefer to travel on comb and to build their own roadway.

Associations require a little more than invitation to bring them into existence—personal canvass to obtain a guarantee against loss in the first instance and the announcement of a show are the best means we know of. A provisional committee, under good patronage, a few pounds spent in advertising, by circular and otherwise, and a show in the immediate future, will generally suffice, and the charges for admission to the manipulating tent will usually relieve the guarantors.—Ed.]

INSTINCT, DIVISION OF LABOUR, AND LONGEVITY OF THE HONEY-BEE.

Instinct.—On the 18th of June of last year, while visiting the lower ward of Renfrewshire Agricultural Society's Exhibition at Greenock, my attention was attracted to a commotion amongst the spectators in front of an old strong thorn hedge, along which the Ayrshire bulls were penned, and on passing over was tickled to find the hubbub caused—could it be possible?—by a swarm of our little favourites, which had spontaneously put in an appearance to exhibit themselves; for there, sure enough, were the Italians sporting their gay liveries over the very noses of the lords of the herd, sending quite a thrill through the onlookers as to what was to happen next and next on a free use of the stiletto; but the bees quietly settled themselves on a branch without the slightest injury to man or beast.

During that sweltering heat, in his shirt-sleeves, appeared a Greenock shipowner of my acquaintance, with his gardener, in pursuit of the runaways. He told me the case was most singular; the bees, on coming off, had been duly placed in a good new skep of the previous season, nearly half filled with nice white combs, and yet they had gone off and abandoned it. It appeared to him as most inexplicable. He assured me there was no soured food or other impurity about it, and to satisfy me that all was right the skep was brought. A glance proved sufficient to solve the enigma; it contained nothing but *drone* comb, owing, doubtless, to the queen of the previous year's swarm being but a drone-breeder. The new tenants preferred to abandon a domicile

furnished with so much useless lumber, and start *de novo* among the branches of the old thorn hedge. I advised the combs to be broken out, when the bees gladly ascended and took possession.

Division of Labour.—In the early spring of last year I received from a friend at a distance a frame hive of black bees, which I had promised to Italianize. I soon saw something was amiss; and a thorough scrutiny confirmed my suspicion of its queenless condition. In the preceding autumn the bees of a queenless stock had been added, and, as we generally find in such cases, the queen had in all probability fallen a victim before those demoralised bees. I materially weakened my purest Italian hive in supplying this stock over and over again with frames of fresh eggs; the workers they carefully hatched, but stubbornly stuck to their republican principles, and would not raise a single royal cell; and it was not till the season was well advanced, and clouds of young bees disporting themselves on every side of them, that they thought better of it, or, rather, the counsels of the young Italians prevailed—a young queen was hatched and duly fertilised. When the population would run about half and half, blacks and Italians, I chanced one forenoon to scrutinise this stock's doings attentively while actively at work, and was much struck on noticing, as I did on some half-dozen subsequent days, that the black bees alone carried in pollen, while not a single Italian bore a load; leading to the inference that pollen-collecting is delegated to the older bees of the hive.

Longevity.—While last alluded to stock was here, my observations extending to midsummer, I found the black bees of the preceding autumn, although far outnumbered, still present and active, their wings entire, without any symptoms of decay.—A Renfrewshire Bee-keeper.

POLLEN-GATHERING.

I had an opportunity of observing my bees collect pollen, and the way in which they transferred it to their tiny baskets, which probably few if any of your readers have been afforded. Some few years since I had several stocks of bees in a cottage garden not far from a flour-mill. In the process of grinding considerable heat is engendered, and this is drawn off from the mill-stones by means of a fan, and with it some considerable quantity of very fine dust, which is intercepted by various contrivances, but not perfectly, as some escapes, from the mill in question, through a square hole in wall covered over with wire lattice to keep out birds, &c.; the hole was about 5 ft. from the ground. It was in a cold but sunny March my bees found out the current of warm air issuing from the hole; and they found out also it was charged with very fine dust, which they began to appropriate. It was very curious to see them on the wing just even with the meshes of the lattice; and although the dust was not visible, every now and then they would seize on the wire lattice by their mouth, suspend themselves in that way until they had brushed down their little bodies, and transferred the white pellets to their legs; so I think it's not right to say bees have but one way of doing a thing.—P., *Warwick.*

THE STEWARTON HIVE.

I am sorry I cannot allow the 'Renfrewshire Bee-keeper's' further remarks on my views of the Stewarton hive to pass altogether unnoticed. I do not wish to contrast my honey-harvests from the moveable comb-hive with any other persons from the Stewarton, but am content to compare the results of the two systems in my own apiary, and under my own management, giving both equal attention. Besides adopting several variations in the working of Stewartons, I have also carried out strictly the instructions given by the 'Renfrewshire Bee-keeper' in the *British Bee Journal*, and I must say that my experience is most decidedly in favour of the frame-hive.

Your correspondent has evidently had no experience with the extractor, or he would not call extracted honey 'that watery deposit, crude or extracted.' When honey is extracted from sealed combs, it can hardly be called crude honey or watery deposit, otherwise the same term might be applied to the honey in supers. Before it is sealed up, the superfluous moisture is evaporated quite as much in the body-hive as in the supers, consequently, such extracted honey is in every way equal to super, honey minus the comb. When we bear in mind that it takes 20 lbs. at least of honey to produce 1 lb. of wax—we can realise the great advantage of the extractor, and the enormous increase to the honey-harvest we are able to secure by its properuse.

Admitting that it is possible to transfer the frames and bars of one Stewarton to another, I still see the objection to the side bars, as they are not interchangeable with the central frames. Therefore, the advantages of the ordinary frame-hive are not secured. It is quite true it is possible, with a great deal of cutting and trouble, to change the bars from one end of the box to the other; but they must be placed in the corresponding positions, and no advantage is gained by the transposition.

Certainly any attempt at spreading the brood in a Stewarton hive would be a very hazardous proceeding; but, judiciously managed in a moveable comb-hive, it enables a bee-keeper to make a strong hive with a small number of bees, which he could not do with a Stewarton.

Every advanced bee-keeper will know by this time that a hive full of bees will increase much more rapidly than one only partly filled; and it is therefore his object to contract the space so that every comb shall be covered with bees. If my bees are only able to cover four combs, the space is contracted to this number, and when there is capped brood on every comb, and bees are hatching out, the frames are parted, and an empty comb inserted in the middle. The hive is now being rapidly filled by the daily hatching-brood, and as the hive shows signs of being crowded, other empty combs are introduced. The hive being always full of bees, there is no danger of the cluster receding, as there is in a Stewarton, where the bees have not only to maintain the temperature of the part of the hive occupied by the cluster, but also that of all the surrounding vacant space. When the space is contracted to the capacity of the cluster of bees, they have only that space to heat, consequently breeding is extended laterally under such circumstances much more rapidly than in the larger space of a Stewarton. Of course, if the bees are allowed ten frames when they can only cover five, the result would be different, and probably, under such conditions, a Stewarton would have an advantage from its octagonal form.

I do not contend for perfect equality of combs in the body of the hive and supers, and these have been used in the south two inches from centre to centre long before the first Scotch exhibits at the Crystal Palace Show. All the supers I exhibited that year had 1½-inch bars, and were two inches from centre to centre.

What I contend for is perfect equality of all the frames of the body-boxes, so that they will fit without

any difficulty in any part of any hive. This is admitted by all advanced bee-keepers, both here and in America, to be essential to a profitable management of bees.

It is quite true it takes three weeks to mature the first hatch of brood, but it makes a great difference if this first hatch covers a space of 3 or 4 inches of comb, as it would if left to itself, or if it covered a whole frame of comb. Suppose we take, for example, a cluster of bees 8 inches in diameter at the commencement of the season, and examine them in a Stewarton hive, we should probably find two, or at most three combs containing brood, varying from 2 to 5 inches in diameter. This cluster would have to maintain the heat of the whole hive, and could not increase rapidly until warm weather set in. Now if this same number of bees were confined by division-boards, and made to occupy only two frames, the whole of the available space in the comb would be filled with brood. There would be no danger of its being chilled, because the space would be crowded with bees, and they could not recede. They are also able to maintain a more uniform temperature in such a small space.

Your (Editor's) remarks apply to the too rapid spreading of brood beyond the strength of the colony, and not to the gradual extension of the brood-chamber with the increase of the population. Your correspondent has evidently not observed the fact that when honey-comb in supers is capped, if left on the hive, the bees will continue to add wax on the coverings until the super is removed. If the combs are removed just when they are completed, the bees have not the opportunity of thickening the cappings. 'A Renfrewshire Bee-keeper' must know that the coverings of the honey-cells in sections would be as thick as it is in Stewartons, were they allowed to remain on the hive long after they were completed; but no such bad practice would be tolerated in a properly-managed apiary. The careful bee-keeper knows that as soon as the sections are sealed over, they are ready to remove, and every day they are left on the hive after this is a serious loss to him. Every ounce of wax added to the comb is equivalent to a loss of over one pound of honey, which the bees would store to the profit of the bee-keeper were the sealed combs immediately removed.

I am not surprised at your correspondent dissenting from the theory 'that bees are more inclined to extend their brood-chamber laterally,' because in the Stewarton they are prevented doing so, and, however much they may be inclined to extend laterally, they cannot do so on account of side combs blocking the way.

Your correspondent must allow that there are times when it is necessary to find a queen,—in making nuclei and artificial swarming, for instance. However great the population of a frame-hive may be there is no such difficulty in finding her as there is in a Stewarton. True, 'the bee-keeper's great desideratum is not to find the queen, but the honey,' but the practical bee-keeper has no need to look for honey in a frame-hive, with him the difficulty is not in finding it, but in taking it away from the bees fast enough during a flow of honey.

Why does your correspondent constantly allude to the moveable comb hive as an 'inelastic' hive 'fixed to legs or cover?' I am afraid he has not had a very extended experience with it, or he would know that it is not necessary for a moveable comb hive to be fixed to legs or cover. Most of the hives I use are quite independent of both. I suppose in America you would not find one hive in a thousand fixed to legs or cover. As regards elasticity of the brood-chamber, perhaps Mr. Abbott's Combination hive with sixteen frames contains the largest breeding space of any frame-hive, and this can be reduced to one or two frames. If this cannot be called an elastic hive, I have yet to learn what elasticity in a hive consists of. The same remarks apply to every frame-hive. My thirteen-frame hives can be easily reduced or enlarged. I prefer having all the brood in one story to having it in three as in the Stewarton. In such hives I have no difficulty in wintering or keeping colonies strong, and am never troubled with moisture or mouldy combs.

For the 'busy man' the Stewarton is useful, as it enables him to get some honey at the end of the season; but it can never become the hive of the bee-keeper who works for profit. Nor could it come into general use, because it is not everywhere that a Stewarton can be placed. It might be placed in some out-of-the-way and sheltered corner of a garden, but could not stand the full force of the wind to which my hives are exposed.

The 'Renfrewshire Bee-keeper' sent a photograph of one of his hives ten storeys high and perched up on a high pedestal, 18 inches off the ground, the summit reaching about 6 feet. It is illustrated in Mr. Bartrum's pamphlet, and so naturally that one expects it every moment to topple over. Such a hive in an exposed apiary would very soon become a ruin. Contrast this with a moveable comb hive, which need not, with its stand, supers, and cover, exceed twenty-four inches in height. There need be no anxiety about these when the wind at night is blowing a hurricane from the south-west. I am quite prepared to allow it, as I have always have done, a place in the apiary, but not the first rank, which the modern frame-hive under modern management holds. There is a class of bee-keepers whose ideas carry them back to the days of their great-grandfathers, instead of the improving age of their more experienced posterity; such are likely to look with reverence upon the form of hives 'used with success in Scotland' 208 years ago, and shut their eyes to the fact that in every respect a modern frame-hive offers greater facilities for manipulation, and obtaining larger quantities of more saleable honey, than from any other description of hive.—THOS. WM. COWAN, *Comptons Lea, Horsham, April* 19, 1881.

SUGGESTIONS FROM NORTH HANTS.

We have had a severe and protracted winter, but all my twenty-three stocks have safely weathered it, and are now doing as well as can be expected in such an unkindly spring. So far as my experience goes, these very cold winters, if they are fairly dry, are favourable to bee-keepers. A quilt of bed-ticking under a piece of common drugget, in addition to ordinary wooden covers is all that my bees ever have to keep them warm in the sharpest of winters, and they never seem to suffer from cold or damp. There have been considerable losses among my neighbours' bees, but I feel sure that the winter is not to be blamed for this. Such losses seem to arise in most cases, even in the case of experienced apiarians, from want of keeping a sufficiently sharp look-out. Stocks are supposed, in the autumn and even in early spring, to be in a good and safe condition. Little or no attention is paid to them for two or three weeks together; and when time and weather, at length, admit of their being examined, it often happens that their stores are found to have been consumed with unexpected rapidity, and the poor insects have perished by starvation. I very nearly lost one stock myself in this way a few weeks ago. It was pretty far gone when I discovered its condition, but I was, fortunately, in time to restore it by the application of hot bricks and warm food. At the present time it seems especially necessary to keep a close watch upon the hives, as, with the abundance of brood that many of them contain, and the discouraging prospects as regards maintenance, some of mine have shown a disposition to infanticide. This, too, I hear, has been observed in other apiaries in

the neighbourhood. It must, of course, be stopped at all costs in the usual way; and it is necessary, as I find, to be all the more watchful, as the sparrows and tomtits are very quick in picking up the white bees. Almost all my hives were buried in the great snowstorm, but did not suffer thereby. In the autumn I generally raise by hand two or three stocks that have been made up of driven and united bees. I have some of these now, which are doing very well; indeed, I find that such stocks never fail to do well. All my bees have been more like pigs than anything else in their consumption of pea-meal this spring, and, so scarce is flower-pollen, that even now they are far from despising it.

I think there was a question raised some time back in your *Journal* as to the respective merits of inside and super sections. From my own experience, I am strongly inclined to prefer sections placed above the frames. I had no difficulty last season in securing a great deal of super honey of the best quality; but, unfortunately, it was only made on plain bars, unsecured by side or bottom rails. The consequence was, that the packing and sending it away by rail was attended with difficulty and inconvenience. For, however carefully and artistically packed, you cannot prevent it from being shaken off the bars in such case, and this greatly spoils the appearance of it when opened by the purchaser. The American sections, for which I am going in largely this season, appear to me to settle the matter in favour of supering. If they do not answer, I, at all events, shall have made a large mistake. Besides, this system seems to me to be a considerable step towards the attainment of one particular object which should be aimed at in all bee-keeping improvements; namely, deprivation without irritation.

By the way, can nothing be done to restrain the violence of railway people, and induce them to deal a little more gently with bees and honey intrusted to their care for carriage? I have heard frequent complaints, and I have suffered considerably myself in this way. I am sure that railway officials always administer an extra kick to anything connected with bees, especially honey. All who were present will remember the shameful smashes they had made of some of the exhibits at the South Kensington Show last year. Nothing that is in the slightest degree brittle or tender has the least chance against their violence. It is for this reason that I wish that the glass honey jars which you are so good as to procure for us from Birmingham were made a little stouter round the middle without loss of capacity, they would then be perfect.

We are attempting, as you may have heard, the somewhat hazardous task of getting up an Apicultural Show in this neighbourhood, to be held in connexion with the Pewsey Vale Agricultural Association Exhibition at Hungerford early in June. The district is a very backward one as regards bee-culture. I think it would greatly help us, and similar districts, if you would kindly publish at the present time some hints about classifying exhibitors, and offering prizes under such circumstances.

It is our object to promote an improved and more humane system of bee-culture, without ignoring and discouraging too much the old straw-skeppists. I am afraid it will be a long time, if ever, before cottagers as a class will be converted to the new system. As a rule, they will not take the necessary trouble nor give the required time, to say nothing of their other prejudices. But one may hope that such an exhibition as we contemplate may not be without its effect upon other classes of the community, who have more time to spare and are less afraid of trouble. I am not without hope that a local Bee Association may be the outcome of the Show. Please help us in any way that you can.—J. H. D., *North Hants.*

DYSENTERY AND WINTER MANAGEMENT.

The various articles which have appeared of late on the above subject induce me to break silence, and review part of what has been said by some writers and mark the confident way it has in more than one instance been put. I confess that I am not perfect as to the management of bees, but as my opinion, through long experience, differs from much that has been written on the subject, with your permission I now lay before your readers the following quotations confronted with my own views and observations.

Before entering fully upon the subject, for the sake of convenience and reference, I will classify the disease under the different designations given by apiarians, viz., abdominal distension (which applies to the disease in almost all its stages), dysentery, constipation, and dropsy.

In your article on 'Dysentery,' December No., you say, 'Dysentery is the winter scourge of the procrastinating bee-keeper,' then you go on to say and seemingly give much importance to the following:—'If he would but feed early, so that the bees might evaporate the superfluous water, and at the same time give them due protection and ventilation, the disease could not exist,' &c.

Now, according to the foregoing statement, there is not any difficulty to know either the origin or the cure of the disease; and according to the following the accumulated dead bees are the great cause of the total destruction of the affected hive: 'But stress of circumstances often causes them to burst and die within, and then the disease runs a "muck" amongst the population. The stench arising from the discharge of matter is abominable, the unsealed honey becomes worse affected, the whole atmosphere tainted and poisoned by both air and food,' &c.

Now in regard to unsealed honey being the winter scourge, how did it happen in the case of a number of hives that I did not intend to keep as stocks until the favourable honey season set in on August—they being nuclei with young queens, Cyprian and Ligurian, which were intended to supplant some older queens? These were not fed until late in October, a considerable portion of the sugar being unsealed; yet these weak hives show not the slightest trace of either dead bees, dampness, or disease; while, on the other hand, several hives which are similarly treated in the external coverings, but which had neither unsealed nor watery food internally, almost every comb in the hive is sealed to the floor with thick desiccated honey,* so much so that out of 100 lbs. of similar comb only 2 lbs. dripped from it, and which nothing could induce to run until by accident some boiling water got mixed with it so that a few more pounds were got, and the rest forming an emulsion with the water was consigned to the vat for mead.

These hives in question were so strong, that after 70 lbs. of sections and combs were taken from each, leaving the hives with as much more—all made at the heather—the hive of twelve frames was completely crowded. They were protected from the weather on the sides with one and a half space all round filled with hay; over the combs lay a thin woollen fabric covered with two inches of dry meadow hay, and the space above open and well ventilated; and yet these hives in two weeks time from the attack were reduced in October to a mere handful of bees, which happily still live and are now free from disease, although the cold has been greater than was ever experienced in this quarter, the thermometer standing several mornings at 2° below zero within, 2000 and 3000 dead bees lying on the floor beneath the small cluster which,

* With every comb in the hive, full of thick honey, and sealed to the floor, the decimation of the bees is no mystery. A very small share of common sense will show that bees cannot be healthy between combs which, in cold weather, become cold as marble. Bees require empty comb to cluster in, and sealed honey to eat.—Ed.

owing to the severity of the weather, could not at that time be removed. These two cases are certainly at variance with your instructions; the cause of the disease and the cure as I effected it will be explained and found farther on.

Francis Baillie, at p. 182, vol. viii., after recounting his success with frame-hives, comes forward in an erudite manner attributing spring dwindling and dysentery to winter cold; but unfortunately he does not supplement his article with any instruction as to how bees should be wintered, telling us only that there is more in wintering bees than most bee-keepers are aware—the inference being that he knows.

Well, then, in order to reason the thing, which means advancement at all times, will Mr. Baillie explain, if cold is the cause of so much injury, what was the reason that in the memorable year 1860 a row of twenty Stewarton hives in an exposed situation with no covering whatever unless a super-roof that kept them dry, came through the winter without being in any way attacked by any disease, neither were they subjected to spring dwindling; while those bees more favourably situated and had more protection were attacked by both dysentery and spring dwindling? And if he will further explain how those that adhere to the system of keeping dry and cool in winter are never visited by the scourge, while those who blindly follow Mr. Pettigrew's plan, who covers (and advises others to do it) with heaps of blankets, and over all some felt, tarpaulin, or, what is to him the *non plus ultra*, a sheep's skin with the skinny side out and the woolly side in! tied firm so that nothing can escape, and that the doorway be narrowed to a very small space. Those parties (bees and Pettigrews) never were free from disease, spreading infection and pestilence around. So much has Mr. Pettigrew suffered from dwindling hives, that year after year for one decade he has been promising a favourable balance-sheet proving great results; but instead we have to listen or read of foul-brood in his apiary, or to his smothering 30*l.* worth of bees in transit from Manchester to Carluke. Yet with all this he ignorantly contends that foul-brood is not infectious.

In the discussion on the Stewarton hive, Mr. Cowan says that 'now all honey or syrup unsealed ought to be extracted, or the stocks would be liable to dysentery.' I now put the same question to him as I have done to the others: How is it that hives with unsealed stores are healthy, while those with nothing but sealed ones are diseased? I pause for a reply.

It is somewhat singular, yet nevertheless true, that success in bee-keeping is often more frequent with the old 'fogy,' who pays little more attention to his bees than simply to give them some slight covering to throw off the wet, while the floor is simply the bottom of a barrel, with a quarter to half an inch open at each joint. Yet his bees are neither subjected to dysentery nor did he ever see foul-brood: while the modern bee-keeper is continually plagued with one or both diseases, often feeding his bees when the old fogy is getting heavy turns.* The above is a fact, and not in the slightest overdrawn; but it by no means depreciates modern bee-culture or appliances, but is sufficient to prove that in our eagerness to have all right and do all well, the fundamental principle of health has been often overlooked.

It is well known, after many years' experience, I have deprecated the system of feeding, unless in weak hives or in cases where it could not be avoided, disbelieving the theory that to secure thriving hives young bees must be hatched late in the season, to the lesion of the hive in summer, as queens cannot be expected to lay continually. While treating upon this subject in the *Farm Journal*, you attacked me in a somewhat ungenerous spirit,* but I was pleased to see, from a recent number of your *Journal*, that you had so far given way to my opinion of experience, that you said where young bees were absent, the desideratum could be attained by joining two swarms together; so that we are both of the same opinion now, and that success is more to be depended upon with numbers than youth.† This is well illustrated with a straw hive, in my opinion the only one suffering from disease, viz., constipation, or rather retarded discharge, brought on by many young bees being bred in October,‡ having never had a favourable opportunity to fly till the first of January, when an attempt was made; but the loss through abdominal distension was equal to what was bred, so that is a proof no gain has been effected through that late breeding. But how different is the case of its neighbour that has not bred a bee, or rather not a bee has been hatched, since the middle of August: this hive is strong, clean, and healthy, and I am sanguine that it will prove one of my best hives by May, when it will still have lots of its July and August hatched bees.§

Having now disposed of the disease as explained in the above case, I will now state my experience with dysentery in another form, wherein the bees are apt to soil the combs; and, if not attended to, will in a short time be all dead.

This form of the disease has its origin through some defect which causes a draught so as to cool down the perspiration of the bees, causing it to condense on the cluster, and to be absorbed by the combs and the unsealed honey ere it passes off at top; so that when once a hive is attacked, the disease gets aggravated and does not relax unless remedial measures are adopted; which are,—first, dry combs, after the bees have had an airing, should be substituted; second, the bees should be located in a space equal to one third of the whole space given, the ventilation above should be free without any draught, and below, so that there shall be both ingress and egress for the reception of fresh air, and ejection of vitiated.

Before describing abdominal distension under its most aggravated form, viz. dropsy, which is simply the second stage of dysentery, I will make one or two observations which will tend to more fully ventilate and clear the mist which hangs round so many of us. I will therefore draw your attention to the remarks by Durdanach of Pitlochry, at p. 184, vol. viii., where he reproduces the advice, or rather the printed instructions, given by Mr. Alfred Neighbour of the old firm of Messrs. George Neighbour and Sons, which were issued along with Ligurian queens shortly after their introduction, the gist of it being to introduce the queen alone and destroy comb and bees; and also sensible advice as to the foolish practice of closing the doorways of hives given at same page, which bears much upon my subject on hand. Those who are in the habit of receiving queens from Italy at different periods of the year could scarcely fail to observe that queens with their workers brought over in hot weather showed more signs of dysentery than were those brought over during cold. Last year, bees that arrived here in August were in a more pitiable state than were those that arrived in No-

* This is begging the question with a vengeance.—Ed.

* This, with due respect, we deny. We make every allowance for individuality of opinion, and are not fond of meddling with others' squabbles; but whenever we see or hear statements that are likely to be injurious to the welfare of bee-keeping as a whole, we feel it our duty to offer a few cautionary remarks. We do not remember the occasion in question, but are quite willing to stand by our expressed opinions.—Ed.

† Our friend should, in common fairness, quote us correctly. Where have we given preference to numbers over youth in the way suggested?—Ed.

‡ Who advised stimulative feeding in October?—Ed.

§ In this case it will be safer to prophesy after May has passed.—Ed.

vember when the thermometer stood at 2° below zero; and in cases where ventilation was given from above, the bees suffered more. The reason of this I hope to be able to explain. But before doing so, allow me to ask your readers if they have never observed, both locally as well as generally, some parts that almost wholly escape not only the storms, but the gentle breezes as well, in short, spots that the cyclone rages or plays around. Spots of this sort are to be found in almost every garden. A beautiful illustration of this sort presented itself on my last trip from Millport: storms were raging in the Atlantic, but the day there was dull and warm (which was not the case more inland). On the steamer leaving Millport, the sea appeared as if it were in life, the numerous shoals of fish, from the huge bottle-nosed whale to the tiny saith, disported themselves on the surface of the water in such numbers that we were filled with astonishment, and naturally evoked the expression, 'Great and manifold are Thy works.' Overhead was dull, while on the sea, save the commotion caused by the fish, there was not a single ripple. Fresh fuel was added to the fires, and volumes of smoke issued from the huge funnel; but the moment it left the funnel it remained in that position; and so far as the eye could reach long after the steamer had left the quay, the smoke hung in the air in the same strata as it had emerged from the funnel; every curve the vessel took the smoke retained, and this phenomenon was witnessed and commented on by many. It afforded me a lesson in a different way, perhaps, than any other on board. Could there be a more excellent example of how a body of carbonic gas could be suspended in an atmosphere free from the influence of town pollution? The intelligent reader will now better understand my meaning as to the cause of dropsy, the most fatal form of abdominal distension.

(To be continued.)

THE IMPREGNATION OF A QUEEN BORN WITH CRIPPLED WINGS RENDERED POSSIBLE.

(Translated from the 'Bienen Zeitung,' No. 2, January 15, 1881. Communicated to 'British Bee Journal' by Alfred Neighbour.)

'Is it not a contradiction or a retractation of your opinion, when you formerly made the assertion that a young queen could only be impregnated in the air, and consequently must be able to fly, and now to speak of the possibility of the fertilisation of a queen which had left the cell with crippled wings?'

This thought might naturally occur to people, and such remark be made in reading the heading of this article. In explanation of this apparent contradiction, I will relate to you my experience with a young queen last summer. In one of my queen-breeding boxes a beautiful and strong Italian queen was hatched, which, on account of one of its left wings being considerably shorter than the corresponding right wing, was unable, in spite of all exertions, to rise up into the air, and immediately fell to the ground in an apparently perpendicular direction. I should not have hesitated to destroy her at once if I had had another queen or a royal cell at my disposal; but this not being the case, I allowed her to remain in the hive. Two days later I examined the colony again, and tried the queen once more, thinking she might in the meantime have gained strength, and perhaps be able to fly; but the result was the same. The queen was, and evidently would remain, incapable of keeping on the wing. It then occurred to me that I might be able to restore the power of flight to the queen by shortening the longer wing a little, in order to establish symmetry and the equilibrium.

This enabled the queen to keep on the wing for a short time, after which she again fell to the ground. But when I had clipped the wing still more, and made it almost like the other, the queen was able, though evidently with very great exertion, to fly some distance in a horizontal direction until she had reached the hive, in front of which the experiments were made. I allowed her to enter, placing against the hive a shutter reaching to the entrance, and I waited to see what the result would be.

About noon on one of the following days I noticed some excitement among the bees of a neighbouring colony, and when I looked for the cause I discovered the queen I had operated upon imprisoned by the bees, but fortunately she was unhurt. There can be no doubt she had been for her wedding trip, and on her return had missed the entrance of her own hive again, and a few days after she began to lay eggs, and proved to be normally fertile. Whether she had been impregnated on the occasion referred to, or during a subsequent excursion, it is of course impossible for me to say.

Would it not after this be possible to restore to a queen hatched with crippled wings the power of flight by lengthening the shorter wing? especially where the latter is very short indeed, instead of shortening the longer wing?

A solution of this problem does not appear to me impossible, and I would suggest that a wing of another queen should be fixed by means of a well-adhering and quickly-drying glue or cement to the stump of the crippled wing, which of course should not be too short.

The experiment might be worth trying by bee-keepers who are possessed of some very beautiful and strong Italian or Cyprian queens which are unable to fly. I should be glad if bee-masters who consider themselves capable of performing such delicate operations would attempt the experiment, and give us their experience. The chances of a successful issue of such experiment, although very problematical, are incomparatively greater than the reported impregnation of a young queen in a glass globe or a cask with a hole at the top.—Dr. Dzierzon, *Karlsmarkt, December* 3.

AN UNCOMFORTABLE POSITION.

A singular incident in connexion with bee-swarming occurred last year in the neighbourhood of Arbroath. A swarm which had left their parent hive were followed by their owner until they alighted on a paling about 300 yards away. While he was in the act of examining the bees the queen alighted on his back, and was followed by the whole swarm, and in a short time she crawled round to his face, the others following. In a few minutes they were hanging in a cluster in the shape of an inverted cone about his face. In order to avoid irritating them, the bee-keeper bent down on his hands and knees, and in this uncomfortable position, scarce daring to breathe, he remained for about an hour. At the end of that time a neighbour, by the use of peppermint, induced the bees to leave the man's head and face, but only to alight again on his back. His coat and waistcoat were then taken off and laid on the ground, the bees keeping their places until a shower of rain, which fell shortly after, drove them back to the hive they had flown from. The bee-keeper was pretty severely stung about the face, but much less than could have been expected under the circumstances.—*Bristol Times.*

COMPLIMENTARY.

'We had intended to give directions for spring management in this article, but we found our ideas so well expressed in the *British Bee Journal*, that we have embodied them in our "Notes and Gleanings," found in another page of this issue.'—*American Bee-keepers' Magazine, April* 1881.

Review.

THE STEWARTON HIVE. The Hive for the Busy Man. By the Rev. E. Bartrum.—This admirably written work most ably treats of a great and interesting pursuit, and commends itself to the reader by the truthfulness and evident love of the subject which are exhibited by the accomplished writer throughout its pages. Three years' trial of the Stewarton side by side with hives of other kinds has convinced the author that 'its merits are very great,' an assertion we most cordially endorse, as we do his opinion that 'it only requires to be better known to be more highly appreciated.' The moderation with which the hive's advantages are set forth, the fairness (a rare quality in enthusiasts) with which discussion of its merits is permitted, the singleness of purpose with which the work has been produced, and the elegance of its composition, constitute it a gem in the coronet of bee literature that cannot be too greatly admired. We are convinced that this little book will enjoy a large circulation, and have a hearty welcome at the hands of all bee-keepers.—ED.

Echoes from the Hives.

Middleham, Yorkshire.—'I think if some one took a tour in this part of the county like that you took in Ireland, it would do an immense deal of good. Indeed something of the kind is needed quite as much here as anywhere. Many of the cottagers are extremely fond of their bees, but do not know how to manage them, nor will they believe without seeing.'—A. W.

Mount St. Chapelfields.—Bee Instinct. Small Queens.—'I have been interested in the contribution to the "Physiology of the Bee" by Dr. Dönhoff, and wish to contribute an instance of the marvellous instinct of the bee, which came under my own observation. Finding that all traces of the Ligurians with which my bees had been crossed had nearly disappeared, and that they seemed to get more vicious, I bought three queens at the Leamington Show in September. It was with these imported worker-bees that the remarkable circumstance occurred. Thinking that by putting them to the hives it might cause fighting, we allowed them to remain in boxes imported, and the window being open some took a flight, of which, after their long confinement, they no doubt were much in need. Of course we thought they would come to the window again; but not only did they do this, but though the window was at one end of the workshop, and the boxes at the other, they came in, and made straight for the boxes on which they settled. This, with bees that had probably never been out of these boxes since they had come from their own sunny clime, seemed to be such a proof of their knowledge of identity, that although it may be the case with some birds and mammals, it is truly wonderful in so small a creature. And talking of smallness reminds me that these queens were so small that it was hard to distinguish them from the workers, except by their lighter colour. This has not prevented them, however, from breeding well, and one of the smallest, when we liberated her from the cage only a few days afterwards, seemed to be nearly double the size; and this, although united to a fading stock, seems to have increased fastest. Therefore, although it may be well to select large queens when they are of the same age, yet small queens may be so through being young, and therefore in that sense to be preferred.'—C. SHUTTLEBOTHAM.

Great Yarmouth.—'I have entered into an arrangement with the Suffolk B. A., to send their manipulating tent to the Horticultural show here on the 25th August next.'—SAM. BARGE.

Harlow, Essex.—'We have I think, successfully launched an Association for this neighbourhood.'—G. BAKER.

Vale of York.—Wintering.—'I ought to tell you that my hives, fourteen in number, five of them round, and nine square and double-walled, have been purposely left without any extra covering through the whole of the severe season we have passed through, to test their wintering capacities; and I cannot see that the square have any advantage over the round. All have wintered well except one, which was weak to begin with, and is so still. A few fine days have brought out the bees, and pea-meal and crocuses are in great request.'—J. H.

Colorado, Jan. 13th, 1881.—'An old friend in a far-off land wishes you and all your household a very happy new year and continued prosperity in the great cause to which you have devoted so much time and energy. Bee-keeping, I may say, is but in its infancy here, this vast state boasting only of about 2000 hives, owned by a very few people. Dr. King, of Boulder, has the largest apiary in this state. It is mainly composed of Italians, numbering about 200 hives. Mr. R. A. Southworth is another of the bee-enthusiasts. This gentleman has his abode on the Platte, some twelve miles below Denver. Mr. J. S. Flory of St. Vrain, Jesse Frazier of Canon City, Mr. McRay, and Mr. W. A. Helm, hailing from the same district, have all got a B in their bonnet. From March until October there are not over a dozen wet days—even in what we call a wet year; and these wet days are merely rains or showers of very short duration. Now contrast this with the eastern and middle states, or even with our own beloved land, where the honey season only lasts, we may say, six weeks, and sometimes a good part of that time the bees are confined to their hives, whereas in Colorado it was never known to rain a whole day. Don't you think that this *smells* good, looking at least from this stand-point? Colorado, practically speaking, has a year of uninterrupted sunshine. We seldom see a cloud in the sky. As regards the quality of the honey, I have seen a good few samples, and it beats all the American honey to "sticks." It has a very heavy body, with a rich and golden hue. The pasturage is the next thing to consider, and of this there would seem to be an abundance. Wild roses, mountain raspberry, hog potato, wild grasses, and prairie flowers, corn tassels, amber cane, alfalfa, and last, but not least, cleoma, or the Rocky Mountain bee plant. I don't think from all I can learn that wintering has ever been very successful in this state, and it's my opinion that it never can unless under the "Cellar System." Winter here is almost uninterrupted sunshine, which, as every one knows, is detrimental to successful wintering. Be the frost ever so hard, still the sun shines bright. Damp is unknown here. A mist was never known. Such are conducive to the safety of bees in a cellar. From all these circumstances I am certain that bees wintered in a cellar would come out *strong* in spring—don't you think so? The *far west* was never in such a prosperous condition as at the present time. Money is here in greater abundance than my highest expectations ever anticipated. Money loans range from 12 to 24 per cent per annum. On house property 12 per cent is what is generally charged. Other loans 15, 18, and 24 per cent. Gold and silver mines are all the run. Men make fortunes in a single day, and sometimes not for years. But if a man has a few thousand pounds, and a little caution, he can easily double his money every year, even with ordinary success; and if luck favour him, why, five, or even ten times his capital is not considered an extra thing. I trust to be home on a visit in five years, and I shall be very pleased to find bee-keeping flourishing like trees planted by a river—*in Colorado*.'—R. M. GREIG.

Stoke-on-Trent, March 5.—'Will you please to discontinue sending me the *Bee Journal*? I think my year is up this month. I believe I began to take it in April four

years ago. I am giving it up very unwillingly, it has been a great help to me many times, but I am obliged to give up my darling bees. I am getting on towards seventy, and having no one regularly about the place to help me, I am not able to attend to them properly. The labour of lifting the hives, &c., &c., is more than I can manage. They have been a great source of amusement, and also fair profit, for many years. I tried to dispose of them last spring, but could not meet with a purchaser, therefore kept them: but I must give them up at once, as I am really not able to hive the swarms, &c. This immediate neighbourhood is not a good one for bees—but mine always did very well when my neighbours did not; this I attribute to the good advice of the *Bee Journal*. In conclusion I must thank you for your prompt attentions to any inquiry I have troubled you with.'—A. C., *March* 5.

Nancy, April 11th.—Spring Dwindling.—'All my hives have passed the winter and have got queens; all but two are in famous good order, apparently; but two are suffering from spring dwindling, and feeding does not wake them up. They both have a little scattered brood, but very little. I expect this spring dwindling comes generally from worn-out queens. I can see no other reason for it in these two hives. I have noticed the same thing before. One of the hives is a swarm of last year from one of my oldest and best stocks. The other is a tolerably old stock. Let us see. It was a swarm of 1878, and has been a very good one in its day, and given me lots of honey. It was in a little cottage hive (large frames) that I got from you; but last year I changed the frames into a new box. It gave a large quantity of honey the two first years, but little or none last year. It may be the hive is too large and heat escapes from it, so the queen will not lay (it is a double hive, made for two sets of frames, but one end is stopped by a board). It was fairly populous when I opened it about 15th March on a fine day for inspection after winter; but it has gone down rapidly ever since.—G. Pearson.

Hurstbourne, Bournemouth, April 14.—'Bees have wintered well here near the pine-woods, having laid in a good stock of heather honey, and are none the worse for the severe weather.'

Hailsham, April 15.—*Combination Principle.*—'My bees are doing well; some of the Combination hives are so full of bees that I have added some frames of sections at back, as they are getting a good bit of honey this week. They are working in them, would it do to put top supers on yet? there seems to be plenty of food about.'—E. S.

[We advise our correspondent to let well alone and not cool the brood-nest by supering during such 'catchy' weather.—Ed.]

Holbrook, Horsham, April 16, 1881.—*Early Drones.*—'Yesterday being Good Friday, while watching my bees which were out in clouds, I thought I heard the booming hum of the drone, and on examination I found one hive with numbers of drones going in and out. To-day the bees looked like swarming, and the drones in great numbers; is not this very early for the appearance of drones?'—H. D. H.

[A happystate of things, but be careful (by feeding if necessary) that cessation of income does not cause the bees to turn out the drones and destroy the brood.—Ed.]

Leamington, March 17th, 1881. *Winter Breeding.*—'I have a very strong stock of Carniolians that were out just before the January snow-storm. Though it was a cold afternoon, they had turned out several dead bees, I should say about two hundred, so I just turned up the quilt, and found the combs well stored with honey, and perfectly clean. After the frost had gone at the end of January, I overhauled them, and found them in good condition, with three frames of brood, and young bees hatching out, sealed brood, and lots of eggs, which showed that the queen must have been laying during that severe weather. They were in a Woodbury hive 2 ft. 6 in. long, but shut up to an ordinary Woodbury size by dummies, and I can only account for the dead bees from the fact of their having so much brood. They appeared to have sacrificed themselves to save the brood. I examined them again to-day, and find them in splendid condition. Another stock of united bees in a 13-frame hive is just in splendid condition. What a treat it has been to see the bees during the last eight or ten days fetching the artificial pollen (pea-meal) out of a straw skep! And don't they fetch it? Hoping we may all have a good season is the wish of—A. W. B. K.'

Somerton, March 25th.—'The loss of bees in skeps this winter has been heavy. The other day I saw a magnificent hive of honey, say about 50 lbs., all the work of an 1880 *first* swarm, and which, to the dismay of its owner, has not a single live bee left. Was this owing to the age of the queen? As yet I have only heard of the loss of one stock in frame-hives. Others are all working well, full of brood in many stages, those in double-walled hives being especially so, but at the same time longer in showing with a change of weather. The numerous willows and poplars are now affording an endless source of employment to bees in this locality, which, mingled with our early spring flowers, are very plentiful, and should be the means of strengthening any weak stocks. Mine still take syrup eagerly.'—T. C. H.

Queries and Replies.

Query No. 381.—*Queens Providing Drone Cells.*—1. Where brood-combs are all worker-comb is it necessary to cut away in spring to give space for drone-comb? 2. *Sugar Candy.*—Is the sugar-candy used by German bee-keepers for feeding the ordinary sugar-candy of our shops? 3. *Frames in lieu of sections.*—Will it answer to use ordinary frames two inches apart from centre to centre at back of Combination Hive, instead of sectionals?—Tetbury.

Reply to Query No. 381.—1. Not absolutely; it would be far better to give a frame with half a sheet of worker foundation only, and let them build drone-cells below it. 2. To the best of our knowledge, Yes. The bees themselves moisten it. 3. Undoubtedly: the bees will build as freely in the narrow frames, but the honey will not be quite so saleable. We are importing sections that will fit into our ordinary frames, and add greatly to convenience in honey-getting. —Ed.

Query No. 382.—*Enticing bees from a chimney.*—In a chimney, the fireplace attached to which has been built up, a large stock of bees have lived for about the last ten years. The chimney is about 18 in. by 9 in., and the bees are about 12 ft. from the top. Last year they swarmed twice, the first time that they have been observed to swarm. Can I in any way induce them to come up, so that I can get them and hive them? If a few frames filled with foundation were fixed at the top of the chimney, would the bees leave their combs and come up to the frames? Would not covering the top, leaving an entrance-hole, raise the temperature in the chimney, and make the bees more likely to swarm?—G. G.

Reply to Query No. 382.—We have no knowledge of a means of *enticing* bees from their beloved honey and brood-combs. If the chimney-top were to be covered and the bottom opened, the bulk of the bees could be tumbled down by the use of burning puff-ball, or a slight dose of sulphur fumes, but that proceeding might cause the death by desertion of thousands of embryo bees in the combs. Covering the top would probably raise the temperature; but would it not also make the space above the bee-nest more tenable for honey-storing, and thus tend to hinder swarming?

Query No. 383.—*Bee flora, Gorse and Mustard.* Kindly inform me, in the columns of the *Journal*, if gorse is a good honey-yielding plant. There is a plot of three or four acres situate on the top of a hill about a mile, as the bee flies, from where I live, would it be within flight of my bees? I have sometimes thought that if you could give a list of honey-yielding plants it would be of service to your readers in ascertaining the honey-yielding qualities of their respective districts, and so help them to determine the size of hive or frame most suitable for their district. Your more experienced readers may not require this assistance, but I think it would be of service to many who may be like myself only—A Novice.

Reply to Query No. 383. Undoubtedly it is within range of bee flight, but whether the bees will visit it depends on whether or not there are superior attractions elsewhere. Lists of honey plants are of little value to bee-keepers, as few can grow more than would make the bees feel hungry. The *Journal* teems with descriptions of bee-flora, and scarcely a month passes without allusion to such flowers as are in season, and recommendations to provide such as will anticipate and help to fill the intervals between the main crops that grow without cultivation for the special purpose, *i.e.* between fruit and white clover and limes, and between white clover and heather and ivy. Judicious sowings of mustard and rape will effect the object, and in the hands of a bee *farmer* would be doubly paying crops.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Correction.—In the last paragraph of the Report of British Bee-keepers' Association, p. 234, Vol. VIII., the Rev. Robert Stanley should be the Rev. Astley Roberts, whose pardon we beg for our error.

North Britain.—*Armenian Bees.*—Can any one afford information on the domestication of Armenian bees, and whether any attempts have been permanently successful?

Early Drones.—These are too often the progeny of unfertilised queens or fertile workers, and their presence in hives not strong in workers should be the signal for investigation. We have had some curious cases of hybridised Cyprian queens laying both worker and drone eggs in worker cells—or at any rate, they are side by side on the same combs, the workers being dark, and the drones beautifully golden.

Quinby's New Bee-keeping.—We are requested to tender to Mr. Detwiler, of Toledo, Ohio, who so kindly forwarded this admirable work to the library of the British Bee-keepers' Association, the best thanks of that Association for his kind liberality and thoughtfulness; and we do so with much pleasure.

Comb-guides for Skeps.—Use Abbott's wood-foundation in strips. Pierce and sew it to the crown with wire or string—1 and 7-16ths inches apart.

Southwell, Graaffstown, Cape of Good Hope.—We are very glad to hear that the desire for 'improved bee-culture' has taken root, and have duly forwarded the books and papers required. The chief advantage of the longitudinal hive is its elasticity. The size of the frames suitable for any particular district has yet to be determined. The Woodbury, 13½ long by 8⅝ deep outside, is commonly used in England; but in many places a frame similar to the Woodbury set on end is preferred. There is a balance of 20*d.* in your favour.

South Lincolnshire.—Your letter bearing neither name nor address, its contents were not admissible to our columns.

Drumeshan, Ireland.—It is improbable that any sane dealer in bee-gear will send goods out on the promise to pay 'when the honey expected is sold.' We respectfully decline to entertain any such proposal.

Bee-Garden Pencils.—On inquiry we find Wolff and Son supply pencils with swivel and string, that must be most useful to bee-keepers. We have been favoured with a cut of them, and willingly insert it.

*** *Desiring to reduce the Contributions which have been in type for some time, we have given four extra pages this month: we are, however, still obliged to postpone some articles, for which we trust to find room in our next issue.*

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Application for Prize Lists to be made to the Assistant Secretary, J. HUCKLE, King's Langley, Watford.

Donations in aid of the Prize Fund for the South Kensington Show, and for the Prizes offered by the Association for Bee-keeping Appliances, at the Royal Agricultural Show, to be held at Derby, on July 13 and following days, will be thankfully received by the Hon. Secretary,

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 98. Vol. IX.] JUNE, 1881. [Published Monthly.]

Editorial, Notices, &c.

JUNE.

If the past month of May has not been all that could be desired, it has, on the whole, been a charming one and a vast improvement on many in preceding years. The usual 'break' occurred in the middle of it, but did not continue so long as former experiences led us to expect, and, excepting that the nights have been cold, the bees have been doing well. Swarming is late, which perhaps may be accounted for by the excessive labour of the bees in honey-gathering, many of our hives being less populous in the third than in the first week, a glut from the orchards being available before they had made sufficient headway in the brood-nest, and the loss of life by overwork great in proportion. In gardens where no bees are kept there is the usual complaint that the early fruits are dropping off, and the frosty nights and blight are blamed as the cause, but the absence of bees is doubtless the true one, while others are described as 'shy.' Our gooseberries hang 'like ropes of onions,' the blossoms having had ample fertilisation—a fact well worthy of careful attention by those who grow fruit for profit.

Those who have taken part in the promotion of improved bee-culture may, we feel assured, congratulate themselves upon having achieved a very large measure of success, for never in our experience has there been such inquiry and demand for improved means as in the present season. The demand for hives, sectional supers, and comb-foundation, is simply enormous, the increase in respect of the last-named being especially noticeable. When it was not well made, and only narrow strips could be used, a half-hundredweight was enough to supply most of the advanced bee-keepers with whom we came into contact. Last year our experiments in regard to wooden-based foundation led to the production of flat-bottomed cells, that, though of pure wax, were strong enough to permit full sheets to be used, and the remarkable success attending them gave an impetus to its use that has multiplied the demand a hundredfold. We have many times alluded to the true economy attending the use of foundation in preference to the utilisation of old combs; and what we have been enabled to show to visitors this year has convinced them, sometimes against their will, that with careful management, it is the great stepping-stone to profit and the certainty of success.

MANAGING AN APIARY.—USE OF COMB-FOUNDATION.

This being a subject of general interest, and one on which, in our last, we promised to enlarge, we took the earliest opportunity of testing the advice we had given to others by following it in our own apiary; and perhaps a report of the proceedings will be as agreeable and useful as a continuation of dry and often monotonous directions.

The first swarm with which we had to deal was a small one of $2\frac{3}{4}$ lbs. only, sent from Ilminster on the 9th of May, it having swarmed on the 8th. It was hived at 8 p.m. in an old box-hive converted, as mentioned on another page, into a Combination or Irish hive, the bees being confined to four frames of comb-foundation fitted as directed in page 2 of last *Journal*. After three days an additional frame of foundation was given, and on every second day an additional one added; and on the 20th they had eight frames of comb built out, and filled with brood and honey, the honey that under ordinary circumstances would have been used up in the production of comb. Every frame of comb is beautifully straight and perfect, whether formed on flat-bottomed or conical-based foundation. On the 21st a frame of sections was placed in the rear of the brood-nest, a diaphragm of zinc intervening; and though the bees are busy, and fussing over the foundation, we scarcely expect much to be done in it until they increase in numbers through the hatching out of the brood.

If a continuance of hot weather were certain, we would continue to drop new frames of

foundation from time to time into the brood-nest, and we have little doubt but that the bees would fill them out; but with so small a swarm, which gets daily smaller through the death of bees from various causes, natural and otherwise, we have not ventured to do so. Neither have we used the extractor, though several of the combs are very heavy with honey, and some nearly fit for sealing. The second swarm that fell to our share was one that had stolen away from some neglected apiary, and had taken refuge in a tree overhanging the public foot-path at Ranelagh Road, Ealing, and which had caused no little consternation in that select neighbourhood. A telegram soon brought us to the spot, and the bees were 'charmed,' and made to enter a skep placed on a pillar of the garden wall, and were on the way to Southall within an hour, where they were soon snugly ensconced among three combs of foundation only, they being but a small swarm of about two pounds weight. Nevertheless they worked well, and a visitor from Grantham, who saw the result the next day, twenty hours after they had been hived, came at once to the conclusion that he 'would never trouble about old combs any more,' since new ones could be so cheaply and readily produced. They have now (21st) six brood-combs, which are as many as they can safely be allowed to have, considering the coldness of the nights through the prevailing easterly winds. An artificially-made swarm from a Cyprian queen mated with Ligurian drones (?), which are the strongest, most prolific, and best workers we have, gentleness *not* being one of their characteristics, has done wonderfully well in a very short space of time. The stock was removed May 14, and a hive containing six frames of foundation was put in its place; and as soon as possible, the queen, not a very handsome specimen, was caught, deprived of half a wing, and placed upon the alighting-board, and the work was done.

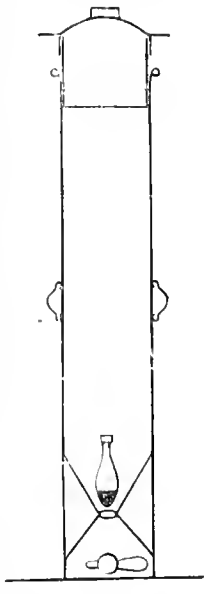
The six frames were presently reduced to four; but next day the swarm received an accession of bees from the stock, and most of the combs having been worked upon, the other two were added, and since then two more have been given; and now (the 22nd) the bees are working well in a frame of sections at the rear of the brood-nest.

Now if little swarms can do such wonderful things with the aid of foundation, what will not a big swarm be capable of? We have little hesitation in saying that by its use, careful management, and with the help of an extractor used with a gentle hand (for new combs are tender), every swarm of bees would repay its cost many times over during a fair average summer, and stocks can be multiplied *ad libitum*.

Those who are in any difficulty about fixing foundation in these frames should bore a hole as indicated in the figure, on one side of the centre of the top bar, and then with a key-hole saw which may be bought for a few pence and stuck into a cork for a handle, the bar should

be sawn as indicated from end to end of the frame, and then from the hole first bored through the side to A, which will allow the part to the right of A to pull open sufficiently for the admission of the foundation, when a couple of screws, pins, or wires through or round the bar at *a*, *a*, will hold the foundation safely, and the bar will be as strong and useful as ever for the purpose intended.

Separating Ripe from Crude Honey.—The use of foundation, as indicated in the foregoing, enables the bees to build comb so rapidly and cheaply, and to store honey so readily, that, as a matter of necessity, the extractor must come largely into use to relieve the combs of their fatness, and as, in such a case, the nectar thrown out will be of various degrees of ripeness, any means by which the ripe may be separated must be helpful to the bee-keeper. Some two or three years ago we were inquired of on this subject, and suggested that all the honey extracted should be put into a tall vessel having a tap at its base, and that gravitation should be the separating agent, and we have been informed that the plan answers 'admirably.' At the top of the vessel, which may be of tin, or tinned copper, a hair-sieve is placed, into which the honey is poured to be strained, and while this is proceeding, the lid (saucepan-lid) of the vessel fits upon it, and keeps out bees and dust. And it will be found that when the vessel is full, and has stood for a day or two, the watery honey will have separated and will be on the top, and the thick ripened honey can be drawn off at the bottom. Much that is watery can be from time to time taken off the top, and fed back to the bees at night with valuable effect. Without some test, the judgment of the operator will be somewhat exercised as to the sufficient ripeness of what is drawn off at the bottom; but by the introduction of a funnel and a glass vessel charged with shot or mercury to act as a 'melometer,' the sufficient specific gravity of the honey could



be determined, and the business rendered comparatively certain. We had intended to exhibit this novelty at the forthcoming shows in the classes for 'New Inventions;' but as extreme pressure of business *may*, and probably *will* prevent our exhibiting in competition this year, we prefer to give the idea at once, in the hope that it may be useful in the coming summer.

For a floating valve, a lemonade or soda-water bottle, with smooth-ended bulb, would answer every purpose, and the whole thing, which we show in plane section, may be cheaply and easily made by any tinsmith. As a simple honey strainer, it commends itself to the notice of every bee-keeper. A plain bag of flannel or strainer-cloth may take the place of the sieve, and being easily home-made, may be preferred.

Preserving Spare Queens. — Forming Nuclei.—When queens are removed from a hive, the weather will, presumably, be sufficiently fine for the work we now have on hand, which is the formation of nuclei in which to preserve those that may be considered worth the trouble involved in the operation. Put the queen alone in a box, a clean, wholesome empty (?) queen-box will do, and cover it with perforated zinc through which bees can feed her. Place the box, zinc side, downwards on broadish board, supporting it (the box) at the corners, so that there shall be an inch of space under it. Lay another board or a tile on top to keep it from being blown over, and to keep it dry, should a passing shower come on. Put on veil and gloves if needed, and having opened a hive that is not fit for supering, lift out three or four of the central brood-combs, minus the queen, shake the bees that adhere upon the board on which the queen-box has been placed, and return the combs to the hive, which may now be closed again. The effect of this operation, which should be performed without smoking or quieting in any way, will be that all the bees that have ever flown will return to the parent hive, while those that have never seen daylight will rush under, and crowd round the queen-box, where they may be safely left for three or four hours to make the acquaintance of, and feed the queen, and give her a new and congenial odour; when they may be allowed to unite. In the meantime a comb of brood should be selected, and we would advise that it be one from which the bees have hatched from the centre, and are sealed and hatching at the circumference of the brood-circle as being least likely to suffer from a possible deficiency of bees, and that it be placed between two containing honey and pollen in fair quantity, the three to be enclosed in a hive, as suggested in former pages, and into these the bees and queen should be allowed to run, and the work is done. There are other ways of forming nuclei, for hatching queen-cells and the like, but we know of no other tested method by which queens may be provided with courtiers at short notice, and established at once on stands without liability to desertion.

Comb Honey *v.* Extracted.—Seeing that bees so rapidly build out full sheets of foundation in stock hives, and that sheets for Woodbury frames can be obtained for less than 6*d.* each, we have begun to wonder whether it would not be equally profitable to give full sheets in ordinary frames for the bees to fill with honey, to be removed, when ready to be crushed and strained, and so save the labour and mess of extracting. We have little doubt that this plan would be infinitely preferable to very many bee-keepers, and considering there would be no loss of wax, no labour to the bee-keeper, and very little to the bees, while the danger of robbing and loss of bee life, consequent on extracting, would be avoided, we think the idea worth recording. Cut off from the body of a hive by excluder zinc, the bees will build out and fill foundation in frames in 'no time' when the weather and surroundings are good, and the wax, after crushing and straining, would be of the purest. We do not propose to dispense with sections and the beautiful comb-honey so saleable in them, nor with the extractor for lightening over-charged brood-combs; but our suggestion will, we feel, commend itself to many who are satisfied with run honey, and who want to get it pure and 'ripe' with the minimum of trouble and expense.

CONTRACTING THE BREEDING SPACE DURING A HARVEST.

'Could you give us in next issue an article on *Contracting the space of queen during honey-harvest*, as mentioned on page 29 of last volume? I don't quite see how this can be done, unless at the expense of weakening the stocks later on, when the old bees are dying and the queen perhaps out of laying.'—Modesty.

Under the heading 'Prevention of Swarming from Supered hives,' on pages 207, 208, of the *Journal* for March last, we have advised a more advanced step than the contraction of the breeding space, to wit,—the removal of the queen, and the prevention of breeding altogether during a honey-glut. The fear of weakening the stock later on is groundless with fair management, for, under the ordinary natural conditions of natural swarming, the hive is queenless for nine or ten days, and breeding is suspended during fifteen days at the lowest computation, to say nothing of the fact that the great majority of the hive's population depart with the swarm; yet it is under these circumstances, the cottager gains his super,

small though it may be. It is well known that the honey-harvest is of short duration in this country, seldom lasting more than a fortnight; and to be of best practical service the queen's removal or confinement should have been effected a week or so before the glut comes on,* that there may be little or no unsealed brood to require nursing or attention. Queens could undoubtedly be confined to a portion of the hive, by diaphragms of zinc, with the requisite perforations, but it is questionable if that would prevent the desire for or the attempts at swarming which cause so much hindrance and vexation. We have before remarked that it is after a swarm has departed, and when there is little brood to attend to that the cottager gets his super, and there can be no harm in imitating the conditions in respect of the brood, but leaving the swarm to work in the supers. After the removal of the queen it will be necessary (to prevent swarming) to cut out *all the queen-cells but one*, within seven or eight days, or the first young queen that hatches out will lead off the majority of the population.

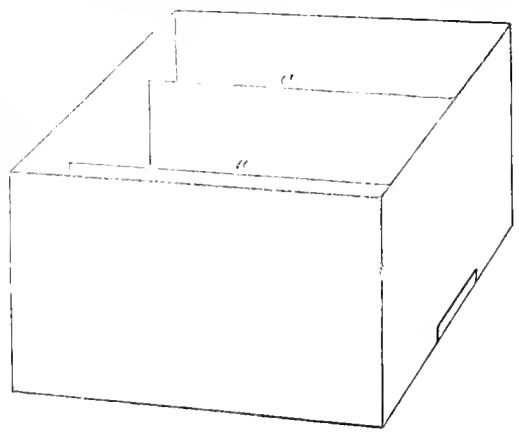
CHEAP HIVES FOR COTTAGERS.

The efforts made from time to time to teach those how to make hives cheaply who cannot afford to buy them are worthy of all praise, and we should be failing in our duty as journalists if we did not give every possible facility for and encouragement to the movement. At the same time we must not shut our eyes to the evil that will arise through the production of so great a variety of frames as turning every box holding a bushel into a bee-hive will cause. The great feature in frame-hive bee-culture is the interchangeability of frames, which can only be assured by preserving uniformity in size and pattern; but if we are to use every box that comes in our way, and make frames to fit it instead of making it to fit our frames, we shall but increase our difficulties.

The Irish Bee-keepers' Association, wiser in its youth than was the British, have determined to adopt one or more sizes of frames, and to recognise no others; and we would urge them while they are about it to determine on the *kind* of frame they will encourage, whether with wide ends, wide shoulders, or distance-pins, that they may be interchangeable in fact as in theory, and every bee-keeper may rely on it as a standard. Our purpose, however, is not a discussion of the merits of frames, but to show how common beef, starch, or soap boxes may be converted to hives suitable for the reception of any frames that may be in use in the apiary.

* This requires considerable judgment and attention, more perhaps than the majority of bee-keepers would be able to give.—Ed.

We would take a box of sufficient size and depth, and instead of cutting it about, would procure two pieces of board of the width desired for the hive side, and of the length of the inside of the box, and would fix them into the box as far apart as the width of the hive should be; cut an entrance-hole, and '*the hive*' is made. The frames can be made or purchased, and, in the latter case, they will be cheaper and more readily obtained if of a recognised pattern. By these means a hive, equal in all respects for the bees to our Irish or Combination hive, may be made for less than half the price charged for a new one, the only drawback being its possibly ungainly appearance. Supposing we have boxes at command, 20 to 30 inches long, 18 to 20 inches wide, and 10 to 15 inches deep, any of which would be good for our purpose, and wish to convert one into a hive. We take, hap-hazard, one that measures,



say, 24 inches long, 18 inches wide, and 12 inches deep inside, and cut an entrance-hole in the centre of one side to denote the front; we then take two pieces of board of the length between front and back of the box, and $8\frac{3}{4}$ inches wide, and fix them $14\frac{1}{2}$ inches apart to the back and front and touching the bottom of the box, as indicated in the figure. Ten Woodbury Standard self-distance keeping frames (our pattern), with top bars split to receive foundation, may be bought for 25 pence, or may be made at home, or any other pattern may be used; and a dummy for the back, and a quilt for the top, will complete the hive. The roof-cover may be made according to taste. If the top edges of the boxes be cut, so that there shall be a slope from front to back, a couple of boards nailed together, with ledges like a common door, will be all that is necessary for a roof.

We have fitted up several old boxes (old hive bodies, 20 by 21 by 11) in the way described, and they answer admirably; and there is the advantage that there is room on both sides of the inner walls for any amount of

packing for winter, or sections in summer. High outside walls are no disadvantage, as they afford protection and give space for supering, and a waterproof top can easily be extemporised.

BRITISH BEE-KEEPERS' ASSOCIATION: HANDBOOK OF MODERN BEE-KEEPING—ITS AUTHORSHIP?

Considerable surprise, irritation, and regret, have been caused by an assertion in a paragraph contained in the *Journal of Horticulture*, to the effect that 'the author of *Modern Bee-keeping* is Mr. Cheshire, who wrote it gratuitously for the British Bee-keepers' Association, especially to assist Cottagers.' We have no knowledge how far Mr. Cheshire, as a sub-editor on bee matters in that *Journal*, may be responsible for this statement; but as it ignores the services of the late Mr. John Hunter as co-author, and that of the several gentlemen on the Committee who gave many hours of gratuitous labour to the task of revising and reconstructing the work, we trust Mr. Cheshire will feel it his duty to disclaim more than a share of the honour that may attach to its production. It is within our knowledge that the late Mr. Hunter and Mr. Cheshire, having already written a book each on the subject, it was deemed courteous to give them the opportunity of creating the body of the proposed Manual, but it was understood that it was to issue as the work of the Committee of the British Bee-keepers' Association; and, most certainly, Mr. Cheshire cannot honestly be accredited with its sole authorship, as is implied in the paragraph referred to. Mr. Hunter, unfortunately, died before the revising was completed—'proofs' of the work had been sent to every member of the Committee, and there were sundry meetings in respect of it, the co-authors being present, and the final task of bringing the workings of these gentlemen into harmony was deputed to a sub-committee consisting of Messrs. Cowan (chairman), Hooker, and Cheshire, and the result of their labour is to be found in the book itself.

We scarcely need remark that the services rendered by all were 'gratuitously' and cheerfully given in the interest of the Association and 'especially to assist cottagers;' and in behalf of the latter, to his honour be it said, no man ever worked harder or more perseveringly in regard to bee-keeping than did the late Mr. John Hunter.—Ed. *B. B. J.*

WATER FOR BEES.

This is highly essential, and can best be supplied by fixing a cask at, say, a foot from the ground, and arranging that water shall drip continually from it. Bees prefer water that has become aërated, and dripping and splashing amongst clean pebbles effects this in an easy and efficacious way. During the present dry weather our 'dripping wells' are thronged with bees all day.

DEATH OF HERR SCHMID.

We have heard, with extreme regret, of the death of Herr Schmid, the well-known and accomplished editor of the *Bienenzeitung*, which occurred at Eichstadt on the 2nd ultimo. He was one of the principal representatives and exponents of German bee-keeping at the last Cologne Exhibition, and his death will be a great loss to bee-keepers wherever the art is practised.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street, on Wednesday, May 11. Present,—Mr. Cowan (in the chair), Mr. Hooker, Mr. Jonas, Mr. Stewart, and the Assistant Secretary. Mr. Garratt, representative of the West Kent Association, also attended the meeting, in reference to the arrangements for the Tunbridge Wells Show. The Honorary Secretary (Rev. H. R. Peel) was unable to be present at this and the two previous Monthly Committee Meetings owing to a long and protracted illness. The minutes of the last Committee Meeting were read, confirmed, and signed. The Chairman reported that he had prepared a list of articles suitable for use in the Bee Tent and at lectures, the cost of which would amount to from four to five pounds: resolved, That the Chairman be empowered to provide the case of articles required in accordance with his Report. The several arrangements for Tunbridge Wells Show were discussed and resolved upon, and Mr. Garratt was requested to communicate with the Council of the Bath and West of England Agricultural Society in reference thereto. Judges for the South Kensington Show were selected, and the Secretary was requested to write to the several gentlemen asking them to accept the office.

The balance-sheet for the month ending April 30 was read showing a balance in hand of 33*l.* 1*s.* 9*d.*

BRITISH BEE-KEEPERS' ASSOCIATION.

(Discussion on Mr. Abbott's paper on 'The Hive for the Advancing Bee-keeper,' read on April 6th, 1881).

Mr. T. W. Cowan said they were all indebted to Mr. Abbott for bringing before them in such a clear manner the subject of hives for the advancing bee-keeper. There were one or two remarks he should like to make, but they would be on matters of detail, and would not affect the general principles laid down by Mr. Abbott. First, then, with regard to the propolisation of frame ends. With narrow-ended frames on runners, supposing we allow that propolisation takes place on both sides of the metal the extent of it would be $1\frac{3}{4}$ inch if the frames are $\frac{7}{8}$ of an inch wide. With broad-shouldered frames it is a little more than this. But if we have thin metal for the runners, the propolisation is reduced to $\frac{3}{4}$ inch. He had for some time adopted Novice's metal frame corners, which were illustrated in the first volume of the *British Bee Journal:* with these propolisation was reduced to a minimum, as, two knife edges as it were interseeted each other, and there was no possibility of the bees sticking the ends of the frames to the runners. He had used racks of wood as introduced by Mr. Woodbury, then the metal racks of Mr. Pettitt, then those of Mr. Neighbour, broad shoulders and distance pins, and found less trouble with plain frames

and metal runners. It was certainly a great convenience to be able to push all the frames together without danger of crushing bees, but there were times when the bee-keeper might find it advantageous to have his frames either close together or further apart than 1½ inches. For instance, by bringing the frames to 1¼ inches from centre to centre drone brood would be prevented, and by placing them farther apart in winter we find bees cluster more compactly together. With the wide-ended frames of Van Deusen he thought there would be a difficulty in extracting the honey unless a special extractor were made for them, they are also inconvenient for uncapping. He had used the Giotto hive, but had found it troublesome and had some time since given it up. With regard to the waste of heat at the top of the hive where metal runners were used, he would point out there was no necessity for this, as the top of the hive might be just as thick where the rabbets were as in any other part of the hives, and in all his hives the outer case of dead air or chaff reached above the rabbets so that there could be no escape of heat. He was very pleased with Mr. Abbott's idea of utilising the wooden foundation for a division between two stocks of bees. He thought it an excellent idea, for which Mr. Abbott deserved their thanks, inasmuch as it would be a great assistance in wintering bees, and in keeping small lots like those of nuclei. With regard to working sections in the hive he preferred to have them started in the body hive, and then to place them in racks on the top to have completed; he found bees took to them better if managed in this way. He complimented Mr. Abbott on the neatness and accuracy with which the frames shown were made, and thought bee-keepers who tried to make their own frames could not expect them to work as well as these would.

Mr. Cheshire took exception to many of Mr. Abbott's observations, but was much pleased with the wooden-based comb dummy or divider, and had no doubt but that its introduction was brought about through his (Mr. Cheshire's) observations some time since on the non-conductivity of combs and their suitability for such purpose. It was a really scientific arrangement. He strongly objected to Mr. Abbott's broad-ended top bars and wooden runner, preferring the zinc runner and distance-pins to keep the frames at proper distance. He also condemned the Nellis and Giotto frame ends on account of the quantity of propolis that would be used. It was all very well, he said, for Mr. Abbott to state that in well-made frames that touched closely bees would not propolise, but in his experience they always did so to some extent. Propolis was of that peculiar nature that in separating articles joined by it, it drew out into strings and did not retain the form it had when in the joint, and consequently when replacing the parts of a hive that had been joined, there would be a cushion of propolis between the surfaces which would accumulate from time to time and render separation impossible except by violence. In the hands of a novice the frames proposed by Mr. Abbott would be highly dangerous to bee life, and the crushed bees would tend to keep the frames apart and increase the liability to propolisation, to say nothing of the possible destruction of queens. Again, the frame ends proposed by Mr. Abbott would practically form thin inner walls to the hive, round which the air could freely circulate, and he (Mr. Cheshire) much preferred open frame ends that permitted the bees in winter to cluster upon the warm hive walls, and pass freely round the combs, as the need of food might necessitate change of position. Mr. Abbott had proposed closed frame ends to obtain non-circulating spaces between the combs, but practically destroyed them by proposing to make winter passages through the combs that would permit the circulation he was anxious to prevent. With thick hive walls of non-conducting material he had always found the bees clustering in winter upon them, and the open frames were most convenient in such case and winter passages unnecessary. He had successfully wintered in a hive of the kind named a little nucleus of bees, not more than a teacupful, with a queen, notwithstanding the severity of the season, and they were then bright and healthy. His opinion was decidedly in favour of open frame ends resting on metal runners, and kept apart by distance pins, that hives should have thick non-conducting walls, and the bees enclosed in winter by cushions of similar character.

Mr. Lyon and Captain Martin spoke in favour of broad-shouldered frames as most helpful to the novice in bee-keeping, and especially where a large amount of work had to be done.

Mr. Abbott in reply said he was quite prepared for differences of opinion on the merits of his suggestions, and as regarded Mr. Cheshire's observations he would remind his hearers that his hive was supposed to be in the hands of advancing bee-keepers, and Mr. Cheshire's objection to it for use by a novice fell to the ground. The remarks that the wide-ended frames formed thin and cold inner walls were nullified by the fact that he (Mr. Abbott) had proposed to leave sufficient space between the frame ends and the hive walls, to permit the introduction of warm packing for winter, which, as he had stated, could be pressed against them; the spaces in summer being available for sections if desired.

Mr. Cowan, in proposing a vote of thanks, said although this was the first time Mr. Abbott had read a paper before them it was not the first time his views had been made public, as this hive question had been brought forward by Mr. Abbott in the *British Bee Journal*, and the hive as shown and explained to-day had been developed step by step from the original hive described in the first volume of the *Journal*. He had listened with much interest to the paper and the discussion, and said he felt they were all much indebted to Mr. Abbott for his paper. The Rev. G. Raynor seconded the resolution.

Mr. Cheshire moved a vote of thanks to the Chairman for presiding. Captain Martin seconded the resolution.

BRITISH BEE-KEEPERS' ASSOCIATION.

Donors to Prize Fund.

	£	s.	d.
H. G. Morris, Esq.	1	1	0
G. Neighbour & Son	1	1	0
G. Allen, Esq.	0	5	0
E. S. Wheeller, Esq.	0	10	0
Rev. J. L. Sisson	0	10	0
H. Bostock, Esq.	2	2	0
J. Bassano, Esq.	1	1	0
Rev. H. R. Peel	1	1	0
G. Walker, Esq. (jun.)	1	5	0
F. R. Jackson, Esq.	1	1	0
Rev. E. Bartrum	1	1	0
Thos. W. Cowan, Esq.	1	1	0
C. H. Hodgson, Esq.	0	10	6
Thos. F. Ward, Esq.	0	10	6

SHOWS AND BEE TENT ENGAGEMENTS IN 1881.

British Bee-Keepers' Association.

June 6 and four following days.—West of England Society at Tunbridge Wells.

June 7 & 8.—Agricultural Show at Hungerford.

July 7.—Horticultural Show at Aylesbury.

July 7.—Horticultural Show at Wimbledon.

July 13.—Horticultural Show at Hawkhurst.

July 13–18.—Royal Agricultural Show at Derby.

July 26–August 1.—Annual Show B. B. K. A., South Kensington.

July 26–29.—Caledonian Apiarian Annual Show at Stirling.

July 30 & August 1.—Horticultural Show at Southampton.
August 17 & 18.—Shropshire Bee-Keepers' Association's Annual Show at Shrewsbury.
August 18.—Berks and Bucks B.K.A. at Maidenhead.
August 25.—Horticultural Show at Wantage.
August 30.—Horticultural Show at Long Buckby.
August 31.—Horticultural Show at Horsham.

HERTFORDSHIRE ASSOCIATION.

July 20.—Herts Agricultural Show at Hatfield.
July 22.—Waltham Cross Cottage Garden Show.
August 10 & 11.—Hertfordshire Bee-keepers' Association's Annual Show at St. Albans.
August 24.—Much Hadham Garden Show.
Sept. 8.—Horticultural Show at Harpenden.

WEST KENT ASSOCIATION.

June 6 and four following days.—Bath and West of England Society's Show at Tunbridge Wells.
June 29.—Farningham Rose and Horticultural Show.
July 16.—Annual Show of the Association at the West Kent Horticultural Show, Camden Park, Chislehurst.
August 3.—Yalding Cottage Gardeners' Society Show.
August 4.—St. Mary Cray, Cottagers' Horticultural Show.
August 10.—Frant Cottagers' Association.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The general meeting of the Lincolnshire Bee-keepers' Association was held at the Exchange Hall, Grantham, on Thursday, the 19th ult., when, in the unavoidable absence of the president, the Bishop of Nottingham, the Rev. E. F. Quarrington, Rector of Stroxton, presided. There was a fair attendance of members, and much interest shown in the proceedings.

The Chairman, after having remarked at some length upon the report to be presented, and commending the object of the Association as one deserving of greater support generally, called upon the Hon. Sec. to read the report, which was as follows:—

Your Committee, in presenting their annual report and balance-sheet, are glad to be able to state that, notwithstanding the very adverse seasons experienced of late for profitable bee-keeping, a small increase in the number of members has taken place, the total number at the present time exceeding two hundred.

The annual exhibition held at Boston in September,—although this was entirely new ground, for, out of a population of over 18,000, there was not a single exhibit—was well supported, and much interest was evinced, resulting in several new members being enrolled. Your Committee were specially aided on the occasion by the Rev. Herbert R. Peel, of Abbot's Hill, Hemel Hempstead, Hon. Secretary to the British Bee-keepers' Association, who kindly attended to deliver an address the evening preceding on 'Bee-keeping in 1880;' and this feature undoubtedly proved a grand introduction to that which was to follow. The address, through the further kindness of Mr. Peel, was afterwards printed and circulated amongst the members. Of the exhibition, and the various exhibits, a full report was, through the kindness of Mr. Abbott, published in the *British Bee Journal*, which the Committee caused to be sent to the members. And here they cannot help acknowledging a feeling of regret that there is still a little slowness on the part of members to advance—especially in the production of those nice sectional supers of from one to two pounds weight, which meet with such a ready sale at good prices. The best prizes at the Show were all taken by friends from a distance. Special mention, however, should be made of the neat, marketable form in which the extracted honey exhibited by members was shown, evincing, as it did, a marked improvement on former years.

The Association's Silver Cup, value five guineas, and offered for the largest exhibit of honey taken without destroying the bees, to members resident in the county, and who should win it three times, was finally awarded to Mr. Sells, of Uffington, at the Long Sutton Show. A second Cup has (by the kind liberality of a few of the members) been provided, which, after very close competition at the Boston Show, was awarded (for the first time) to Mr. T. Sells, of Uffington.

Your Committee, from past experience, consider it desirable to continue the practice of holding the annual exhibition at different towns in the county, as one of the best means of advancing the work, as also of increasing the number of members to the Association; and, as opportunity offers, to give small displays at Village Flower Shows. This was undertaken by a few willing members at three or four Shows during the season, and formed a great centre of attraction.

The county of Lincoln being so very extensive, your Committee considered it desirable to appoint District Secretaries 'to hold the fort' after each exhibition. The arrangement they are pleased to state, is working satisfactorily.

Your Committee would express satisfaction at the progress generally of the more advanced method of bee-keeping in the county. Wherever the exhibition has been held, its fruits may now be found; and as a rule those who formerly dreaded the little Bee, having witnessed the experiments in the Bee-Tent, no longer do so, whilst many members have become real experts and willingly assist in helping on the work whenever an occasion presents itself. Still there is great want of a regular teacher to visit members and direct them, especially those starting with bar-frame hives; and this want, it is hoped, will ere long be provided for.

The arrangement by affiliation to the British Bee-keepers' Association your Committee hope will be followed with results beneficial to both, and that by such co-operation the one common object may be greatly furthered. Your Committee would here state that there are now twelve County Associations in affiliation with the British, the President of each being Vice-President of the British. County Associations in affiliation contribute one guinea per annum, and are entitled to the free use of the Bee Tent for manipulations, a silver medal, bronze medal, and certificate to offer as prizes, and the assistance of the expert at the Annual Show, also of being represented at the quarterly meetings.

Your Committee would be glad to find the Association receiving a larger measure of support from the clergy and county gentry, this being, as they believe, a matter of the highest importance to the residents in rural districts, and feeling assured that the introduction and wider knowledge of an improved and more profitable system of bee-keeping, especially amongst the poorer classes, would be attended with the best possible results.

In drawing attention to the financial statement annexed, your Committee regret the amount of arrears of subscriptions and would remind members that as all the labours of the officers of the Association are voluntary, it is very desirable to save them as far as possible unnecessary trouble and anxiety, as well as to lessen the expense of stationery and stamps; and this they suggest might be done by members remitting their subscriptions at the commencement of each year, or on receipt of notice.

Before closing this Report, your Committee desire especially to thank the Rev. Herbert R. Peel for his instructive and able address at Boston, which contributed so greatly to the success of the annual gathering. To Lieut.-Col. Moore, who presided over the meeting, in the absence of the Right Rev. the Lord Bishop of Nottingham, President of the Association, the grateful thanks of the members are also due. Of the valuable assistance

rendered throughout the whole of the proceedings by the Mayor of Boston (J. Thorns, Esq.), your Committee feel they cannot speak too highly, to his kindly sympathy and generous aid, as also to his own active participation in the work of the exhibition, must be attributed a large proportion of the interest aroused in the town and district, which they hope and believe cannot fail to prove of lasting benefit to the Association, and materially tend to the advancement of its object. And, further, your Committee desire on this occasion to acknowledge the very valuable aid so generously given at the annual exhibitions of the Association by the Rev. J. Lawson Sisson, of North Walsham, whose able lectures and clever manipulations in the Bee Tent especially have been so instructive and amusing.

After some discussion, the Chairman moved, and Mr. John Hall seconded, 'That the report and balance-sheet be adopted, and that the same be printed and sent to each member; also that thirty copies be sent to the Hon. Secretary of the British Bee-keepers' Association. (Carried unanimously.)

Mr. Sells proposed, and Mr. H. Yates seconded, a vote of thanks to the President, Hon. Treasurer, Hon. Sec., and Committee for their valuable services during their term of office. (Carried unanimously.)

Mr. Alsop proposed, and Mr. Upton seconded, the re-election of the Bishop of Nottingham, President, H. Levick, Esq., Hon. Treasurer, Mr. R. R. Godfrey, Hon. Sec. (Carried unanimously.)

Mr. Plowright proposed, and Mr. H. Yates seconded, 'That the following gentlemen be elected to serve on the Committee for the year:—Mr. John Bolton, Grantham; G. F. Barrell, Esq., Spalding; J. W. Measures, Esq., M.D., Long Sutton; J. G. Desborough, Esq., Stamford; Mr. T. Sells, Uffington; Jas. Eaton, Esq., Grantham; Mr. Geo. Brett, Grantham; W. A. Carline, Esq., M.D., Lincoln; Mr. Upton, Grantham; John Small, Esq., M.D., Boston; Mr. Plowright, Grantham; Mr. Wm. Barns, Londonthorpe; Mr. G. Bywater, Louth. (Carried unanimously.)

The question of locality for holding the next exhibition was discussed. The Hon. Sec. read a letter received from Mr. G. Bywater, of Louth, asking that the Association's next exhibition be held at Louth in September; also a letter from G. F. Barrell, Esq., of Spalding, expressing an opinion favourable for Louth. After a lengthy discussion, Mr. John Bolton proposed that the next exhibition be held at Louth, provided that a sum of not less than 30*l.* be subscribed to the prize fund of the Association by the inhabitants of Louth and district. Mr. H. Yates, in seconding, suggested that a guarantee should be given for the sum named, which should be paid to the fund of the Association prior to the Show, and that the Hon. Sec. be requested to write to Mr. Bywater, the District Sec. at Louth, the discussion of the meeting. (Carried.)

The Hon. Sec. stated that the duties devolving upon him had become so very great consequent upon the extension of the society's work, that he would be glad if the meeting could see their way to the appointing of an assistant-secretary, who should do the general work of the Association; and if so he would be happy to continue to give his services as hitherto in directing matters. By the unanimous wish of the meeting, the Hon. Sec. was requested to engage what assistance he required, the cost of such assistance to be charged to the general fund of the Association.

The drawing for hives and bees was kindly conducted by John Hawkins, Esq., assisted by Masters H. Dickinson and G. Godfrey, when the Rev. B. Bailey, Mr. Geo. Brett, Mr. Wm. Barns, and Mr. Jas. Barnacle, were the lucky ones drawn. Amidst some merriment, Mr. Hawkins remarked the rather remarkable fact that the members drawn were all B's.

The balance-sheet showed the receipts from all sources to be 85*l.* 4*s.* 11*d.*, and the expenditure in prizes, silver cup and general expenses, 83*l.* 15*s.* 1*d.*, leaving a cash balance of 1*l.* 9*s.* 10*d.* with stock, consisting of silver cup, bee-tenting, two slingers, hive, and sundries, to the value of 11*l.* 17*s.* 6*d.*

A hearty vote of thanks, proposed by Mr. H. Yates, and seconded by Mr. Sells, was accorded the Chairman, who thanked the meeting for their kind expressions, and said it had given him great pleasure in being present to take part in the proceedings.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The Committee of the above Association made arrangements in the early part of the spring for their appointed expert, Mr. T. B. Blow, of Welwyn, to pay a visit to each member of the Association during the spring months, for the purpose of giving the members advice in the management of their bees. Mr. Blow was allowed to devote one hour to each member's apiary; all time occupied beyond one hour to be paid for at the rate of 2*s.* 6*d.* per hour. The result of these visits has been to add a large number of new members to the Association, and much interest in the improved methods of bee culture has been created in all parts of the county. At the last meeting of the Committee Mr. Blow's Report was read as follows:—

Gentlemen,—I have to report that the Spring visit to the members of the Association was commenced on March 3rd and was completed on April 30th. The actual number of days occupied was thirty-two, and during that time 250 members have been called upon, and 842 hives of bees examined. The actual time taken up in examination of hives and giving of advice has been 121½ hours, showing an average of slightly under half-an-hour to each person. The number of miles travelled has been about 647. In only two cases has the allotted time been exceeded. Taking the apiaries on the whole throughout the county they may be said to be in good condition, the proportion of good to bad being 7 to 1. A considerable number of stocks have perished during the past winter; Tuesday, Jan. 18, being a very fatal day, many having then been blown over and destroyed. Under deaths from other causes, death from starvation in bar-frame hives claims by far the greatest number of victims. The starvation has not, in my opinion, resulted from the bees having been left with a short store at the commencement of winter, but from insufficient covering on the top of the hive, and from neglect, or want of knowledge of contracting the space of the hive by dummies. In many cases only one thickness of carpet was placed on the top, and often this had been shifted out of place in the act of putting on the roof, thus causing a continuous draught through the hive. In one case where the bees were still alive no quilt at all was on the hive—simply the roof. I could not ascertain how long this had been the case. The number of bar-frame hives in the members' apiaries is 504, and of skeps 338; so that it will be seen that the frame-hives have come into very general use, but certainly a proportionate amount of knowledge respecting their management has not been acquired with them, and I am forced to the conclusion that in the hands of inexperienced persons they are far worse than straw skeps. Information respecting them was, however, eagerly sought, and I have no doubt that a great improvement in their management and wintering will be made. With skeps fewer deaths have arisen from starvation, owing, I think, to the fact that less care is required in wintering, and the management is better understood. A large number had, however, died out through queenlessness. The cost of bar-frame hives is a great complaint among cottagers, and the attempts at home-made hives leave much to be desired. I think that the Association

should endeavour rather to show how the honey may be collected in the best form from straw skeps than to advocate the use of bar-frame hives amongst cottagers. The small, though very good, collection of Mr. Beard of Northall deserves mention for the reason that the whole of his skeps are adapted for the collection of honey in sectional supers, and that too at small cost. The hives are cased in with a rough box and roof. Chaff is put in to the level of the top of the skep, and it is then quite easy to put on the crate of supers with a board. Only three cases of foul brood have been met with. The chief centres of successful bee-culture seem to be Hadham, Ashwell, Baldock, Hitchin, and Welwyn. The west of the county is certainly far behind the east at present in this respect; the latter is, however, behind in point of number of members and the amount of subscriptions paid. About twenty-five members have been added to the Society.—Thomas B. Blow.

The Annual Show of the Association will be held at St. Albans, on August 10th and 11th, in connexion with a large County Horticultural Show. Classes, open to All England, have been added to the Prize List, particulars of which will be found in our advertising columns.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES' ASSOCIATION.

Tunbridge Wells Show.

We are very pleased to state that there is every reason to anticipate success for the efforts which are being made by the British Bee-keepers' Association and the West Kent Bee-keepers' Association to make use of this occasion for bringing into prominence the improvements which are being rapidly developed in bee management. Although the period of the year (June 6th) is a very early one, it is anticipated that there will be a very good display of new honey, thus evidencing the immense superiority of bee-keeping under an intelligent and scientific system, as compared with the old and ignorant method. It is highly gratifying to know that H.R.H. the Prince of Wales has consented to visit the Show Yard, and the hope is entertained that his steps may be again guided to the Bee department, and his kindly notice and approval obtained as on the occasion of the Royal Agricultural Show at Kilburn.

Lecture at Ore, Hastings.—On Thursday evening the Rector, the Rev. D. A. Doudney, gave a most interesting and instructive lecture on bees to the members of the Ore Working Men's Institute, and their friends. The lecture was a practical one. Mr. Doudney, having a thorough experience in bee-keeping, explained fully the habits and working of bees, and spoke of the profit which might be made from them. A modern hive, with its various appliances (the work of Mr. Cecil Doudney), was exhibited, each process in the working being thoroughly pointed out. The processes of artificial swarming, feeding (on barley-sugar or syrup), and taking the honey, were also lucidly explained. Mr. Doudney thought, in conclusion, we might learn many lessons from bees. Diligence, love of unity and co-operation, foresight, and in misfortune not to despair, but set to work to repair the loss, and many other practical lessons, were set forth. The chair was taken by the Rev. J. Puttick, who passed a most cordial vote of thanks to the lecturer for a very interesting and enjoyable lecture, with a hope that it might be repeated.—*Hastings Observer.*

Bee-keeping at Stirling.—On the 21st April last, the Rev. John Irving of Innellan delivered a most interesting lecture on bees, their habits and profitable culture. Referring to the pleasant hours he had spent with them in his garden, and sitting-room, where he had an observatory hive that he might watch their movements, the reverend lecturer entered minutely into a description of their labours, their building, sanitary arrangements, and government, suggesting useful lessons to the human race, and showing that their wonderful instinct approaches more nearly than that of nearly every other creature to the reason of man. Hives, foundations, and the extractor, were next treated of, it being claimed that their use will presently be universal, and the improvements that had been made in this country and in America fully dilated upon. The rev. lecturer was listened to with marked attention by a large and appreciative audience. R. J. Bennett, Esq., Hon. Sec. of the Caledonian Bee Association, took occasion to call the attention of the audience to the great Bee and Honey show that is to take place at Stirling in July next, and urged the formation of clubs and associations, asking especially that the audience would use all possible means to support the Caledonian, and by affiliation with it to avail themselves of the many advantages it offers. The *Bee Journal* came in for a share of marked approval, Mr. Bennett advising the audience to take it as the best means of information. A Bee-keepers' Society for Cowal was then formed, and a hearty vote of thanks to the rev. lecturer closed the proceedings.

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

NOTES ON A NEW BEE-DISEASE.

Up to the present time bees under artificial treatment have been liable to but two diseases, namely, dysentery and foul brood. Both these diseases are now well known to most bee-keepers, and are little to be feared if proper precautions are taken to prevent them. There is, however, a disease entirely different from either of the above, which I have been lately investigating, and which was first brought before my notice by Mr. Wood of Denmark, who is well known as an authority on foul brood. Mr. Wood forwarded to me a specimen of comb which had been sent to him for examination, and wrote stating his opinion had been asked about the disease. He also stated it was entirely new to him, and asked my opinion upon it. By examining it under the microscope, I was not long in finding out that it was quite different from either dysentery or foul brood. Mr. Wood stated that the person who sent him the specimen of diseased comb insisted that it was only the drones which were attacked. This led to a correspondence between Mr. Wood and myself, from which I gathered the following facts about this disease.

The disease, which is one of both the brood and bees, made its appearance in the summer of 1880 in the apiary of a teacher of Harte School, near Kolding, Jutland. The drones were first attacked, and this probably led the bee-keeper to suppose that it was a disease of the drones. The pupæ of the drones dried up in the cells; and here it will be observed is a striking difference from

foul brood, where the larvæ rot and become a putrid, liquid mass. The disease then spread to the workers, most of which perished in a similar manner. Some of the workers matured, but came out of the hive quite lame, and were not able to move their front legs. They crept about the hive, and on the ground under the hive, as though they had cramp, and large numbers of them died. Every morning there were quantities of dead and creeping bees on the ground. This state of things went on for some time, and at last the hive became queenless. A comb of healthy brood was given to the colony, and the bees at once commenced constructing five queen-cells. Three of these matured in due time, and the queens emerged; but the hive did not regain strength, and gradually dwindled through loss of numbers. The frame of brood introduced into the hive became affected in a similar manner, and the disease spread to the next hive.

As soon as I received the specimen of comb from Mr. Wood, I made an examination of the affected brood, and at once came to the conclusion that this was an entirely new disease, and quite different to foul brood. Some of the diseased cells were uncapped, and the contents presented to the unassisted eye the appearance of dried pollen. Some of the larvæ had developed into pupæ, and were nearly ready to emerge as full-grown bees from their cells. The microscope, however, revealed the fact that the pupæ were permeated, and completely filled, with mycelium of fungi, which appears, previous to the development of clavate bodies, on the surface, which open and discharge their spores.

The figure I send you is a very much enlarged representation of the appearance of these bodies, to which mycologists have given the name of Cordyceps, or Claviceps. This fungus is so closely allied to the ergot of rye that I have given it the name of *Claviceps Apium*, and it is very probably produced by the bees having collected the ergot (*Claviceps purpurea*), and stored it with the pollen. The necessary conditions as to temperature and moisture being present, the spores germinated, and the development of the mycelium produced the effect described.

Here, then, we have a new disease which the microscope shows us is of fungoid origin; and, further, we are able to trace it to a particular species of fungus. That this disease is contagious is proved from the fact of its having spread to the healthy brood introduced into the stock and to the next hive.

Rye is more subject to ergot than any other cereal, although it not unfrequently attacks grasses in this country. Fortunately this disease has not made its appearance in this country; but to be forewarned is to be forearmed, and should any case arise, it is to be hoped measures will be taken to at once stamp it out. As it is a fungus, most likely salicylic acid would arrest its progress. I have not been able up to the present time to get the spores to germinate artificially, so am not able to give more than a hint as to the probable treatment of a hive affected with this disease.—T. W. Cowan, *Comptons Lea, Horsham, May 18th*, 1881.

THE INTRODUCTION OF THE HUMBLE BEE INTO NEW ZEALAND.

In the April number of last year's *British Bee Journal*, I contributed some remarks on 'The Humble Bee,' and alluded to the attempts made to climatise that useful insect at the antipodes, with the view of their fertilising the red clover plant which the shorter proboscis of the hive-bee failed to effect, and the large sum expended annually in the purchase of imported red clover seed which might be saved by their presence in having it grown in the colonies.

The attempt of January 1880, then alluded to, having, like all previous efforts, failed, although the entire arrangements were approved of by the late lamented Mr. Frederick Smith, of the British Museum, as did those conducted under the supervision of that distinguished and alas! also now deceased eminent naturalist, Mr. Frank Buckland.

The well-known firm of Messrs. George Neighbour & Sons, who had been commissioned to make a fresh attempt, consulted me last autumn as to the probable cause of failure, and as to any suggestions I could make with the view of carrying out the experiment with anything like a fair prospect of success. I suggested that very likely the queen-bees perished through getting thoroughly aroused by the tropical heat on the steamer reaching that latitude, and, like the imprisoned birds, beating themselves to death on the bars of their cage; and the better plan would be to pack them while dormant in dry moss, and preserve their winter's dormancy in the uniform low temperature of the ice-room of the steamer. The next thing was to find the queens for experiments; and, again, I enlisted the valuable services of Mr. Duncan Kerr, the clever and intelligent foreman of the Crossflat Nurseries, near Paisley, whose bee-keeping antecedents caused him to go into the matter *con amore;* and after much painstaking labour and prospecting, he succeeded in unearthing no fewer than eighteen beautiful specimens, which were duly despatched from London on 9th January, by the *John Elder*, one of the Orient line of steamers; and, as appeared from a report in the *Timaru Herald* copied in last month's *Journal*, through delay taking place in the delivery and opening the package at its destination, only two of the queens remained alive, which soared away strong on the wing. It is to be hoped that the three which followed from the same source, and similarly carried, by the steam-ship *Norfolk*, direct to Canterbury, New Zealand, from London on 20th January, may safely reach, be at once liberated, and in the wake of the pioneer pair rapidly multiply and replenish the Southern Hemisphere.

In the *Timaru Herald* report there appears a

most inaccurate statement, which would scarcely do to appear in these pages uncorrected, in connexion with finding the queens in Scotland; it is said, 'The nests were marked down in the summer, and then, in the early part of the winter, each nest with its queen was carefully dug out, and placed separately in a box of moss for export.' On the contrary, it is a perfectly well-known fact that humble queens altogether abandon the parent nests on the approach of winter, and hybernate singly in the ground, about tree-roots, turf dykes, and many out-of-the-way hiding-places.

Public thanks are due to Messrs. J. Green and Co., owners of the Orient line of steamers, for the handsome manner in which they carried the humble queens free of all charge, and the kindly interest they took to further the adventure.—A Renfrewshire Bee-keeper.

WASPS.

No spring, in my recollection, has produced such an abundant crop of queen-wasps. I have seen many hundreds, and with the help of my children have killed great numbers, but the cry is still 'They come.' We find them on the gooseberry bushes and kill them either with scissors or a rapid nip between finger and thumb. I may add I have entirely failed to catch them in bottles. In this county it is certain that bees will be most vigorously assailed during the summer, and much care must be exercised to prevent robbing. And while on this subject perhaps you, sir, or some of your correspondents, would give me some information as to the fructification of the queen. When is it done? Also is the common wasp the male, or are there queens (or a queen), drones, and neuters, as in bees? also what is the average number of queens that leave the nest in autumn to sleep through the winter, and perpetuate the race in the summer?—Arthur R. White, *Charlton House, Bellingham, Northumberland.*

[There are many points of resemblance in the natural history of wasps and bees. They both come under the description of 'social insects'—'creatures that in communities exist.' The communities of the wasps consist of females, males or drones, and workers. The females are of two kinds: first, the females proper, which are considerably larger than either the males or workers: they are equal in weight to six of the workers, and produce both males and females. Secondly, there is a smaller kind of females, which, like our fertile workers, produce only male or drone eggs. The females in a populous vespiary amount to several hundreds; they emerge from their pupa state towards the end of August, about the same time as the males, and fly in September and October, when they pair. Very few of these females survive the rigours of the winter. Those only that are strongest and fittest do so, remaining in a torpid state till the bright vernal weather revivifies them and recalls their powers into renewed activity. It is in spring that the greatest vigilance should be exercised in the destruction of the queen-wasps, for each survivor is the founder of a numerous colony. These colonies ofttimes attain to formidable dimensions: the number of cells in a vespiary sometimes amounts to 16,000, which, making all allowances for failures and casualties, would give a population of at least 30,000 during the season.

The male wasps, while smaller than the females, weigh as much as two workers. They, like drones, have no stings. When the object of their existence, the fertilisation of the females, is attained, they are not turned out of the community, like the drones by the bees, but continue to run the even tenour of their lives, till, together with the workers, they perish through the severity of the winter.

The workers are the most numerous body of the community, and on them devolve the principal labours of the nest. They are familiar to all of us. Their troublesome, prying, and intrusive habits are too well known. Sugar, wine, fruit, honey, and all sweetnesses, are the great objects of their quest. From time immemorial they have been called robbers and thieves, and other harsh names; but, doubtless, their extreme cupidity is subservient to some great and overruling law.—Ed.]

GLOVES AND STINGING.

I strongly recommend your correspondent, Mr. Jenyns, to adopt the plan which 'A Country Parson' recommended in your columns, viz., rub his hands over with a thin solution of sugar and water. This entirely removes the necessity of wearing gloves. I have found it to be thoroughly effectual.—An Amateur.

GLOVES.

May I suggest to your readers to try string gloves for manipulating bees? I have given them a good trial, and find that they are not at all irritating to the bees, and I have never been stung through them. They should be knitted of the finest smooth twine, and lined with fine wool, which can easily be drawn through the threads of the twine on the inside. It is advisable to have the gloves well soaked in cold water, and wrung out before using them.—J. Lingen Seager, *Stevenage, May 23rd*, 1881.

SAVAGE BEES.—OUR NEW IDEA GLOVES.

If you could find room for a reply to the enclosed queries, I should be grateful. My bees, one strong hive in particular, are most savage. This morning, armed with the new smoker, which looks like a 'Rooter,' I thought I should have an easy conquest. I gave them a dose in the door, then waited the approved time, and, as I rolled back the quilt, worked the smoker down from the top. So far good. But the moment I touched a bar to take it out, they came out like demons, and clung to my gloves (which, luckily, were a pair made after the pattern you suggested in your last—cotton over woollen—which, with a gauntlet of oilcloth to tuck my coat-sleeves into, are perfect), and appeared as though there were no such thing as a smoker in existence. The worst part about it is, that the bees follow me into the house, even after walking about the garden* for ten minutes or more, and sting my friends that have not in any way offended them. After a 'stir-up,' for hours there are prowlers and 'whippers-in' that make us all keep our distance in a most undignified way. My poor children suffer most. I was assured they would never be stung ere I started some two years ago.

* My garden is small, but the bees ought on that account to be more friendly.

I would therefore ask, (1.) Would a dummy man fixed up in the garden near the hives have a soothing effect? (2.) Would smoking and waiting fifteen minutes be beneficial? (3.) Are my bees, from this description, unnaturally savage? or is it the nature of the beasts generally? (4.) Would you, in this case, be deterred from breeding from these? Unfortunately, the most savage are the best workers. (5.) Any suggestion I should esteem a favour, for I fear to be the plague of the neighbourhood.—IGNORAMUS.

[The bees are undoubtedly hybrids of peculiar cross, and happily their ferocity is not shared by bees generally. As is usual with cross breed bees, they are good workers; but that will scarcely compensate for their savageness and dangerous character. Judging from their persistence in avenging insult, they would appear to have a tinge of Egyptian or Syrian blood in them; and where children are liable to attack, it would be bad policy to breed from them. A dummy man would have no more effect upon them than would a post, except it moved with the wind windmill-fashion, and then they might only be rendered more irritable. We have often had to deal with such. Once nearly half a swarm attacked our veil, as if offended with our breathing, and their weight pulled the gauze from its fastening, and we had to run away with a lot of the wretches inside it. With a doubled veil perfectly secured, we returned to the charge, and let them spend their fury: and it almost seemed that, finding themselves overmastered, they gave up. Certainly they were never so cross again, perhaps because, knowing their evil temper, we were more careful in dealing with them. Smoking and *waiting* for fifteen minutes would do little good, because they would drive all the smoke out of the hive, and recover from its effects in that time; but if the smoking were continued by puffs at very short intervals, and the combs and bees sprinkled with thin syrup after the first few puffs, they would soon be in such a condition of fulness as to be incapable of attack. It is, doubtless, the nature of the bees to resent interference, and they have learned that they are masters of the field; but the treatment proposed may change their tone, if it will answer the purpose under the circumstances to persevere with them for a few days, *i.e.*, if the game is worth the candle. Our leaflet on *Quieting Bees* may be helpful. It is almost a pity to breed queens from the mother of such truculent wretches. We would pinch her to death, and introduce one of milder breed rather than create ill-will to bees in the neighbourhood. Describing our proposed gloves as '*perfect*' is high praise indeed.—ED.]

TWO QUEENS IN ONE HIVE.

In continuance of my letter on page 13 I have made another examination of the hive, and find both queens there, and the drones still numerous. I also observed both of the queens in the act of ovipositing. The drone-brood is not so numerous as last week. After examining this hive I turned my attention to the next one (five feet distant), a very strong stock and the finest in my apiary. The queen of this hive is, or was, a yellow hybrid, and her bees cannot without difficulty be distinguished from Italians; I found here a little sealed brood, no eggs or grubs, a recently tenanted queen-cell, and a young queen, much darker than the old one. This evidently solves the mystery! The queen of this last-mentioned hive has evidently been out for a little exercise, and gone into the wrong hive, and in consequence of the drone-breeding propensities of the rightful queen, has been suffered to live.

It is still, however, a very strange occurrence, and we still have the fact that all the drones in my apiary have been bred in worker cells, so that it is yet a matter of interest as to how the newly-born queen will mate. I should perhaps have mentioned before that I cannot find any remains of queen-cells in the hive with the two queens. I will still watch closely the two hives, and report progress.—A. R.

FOLK-LORE ON BEES.

Some years ago contributions of 'Bee Lore' were made to 'Notes and Queries,' but they did not assume any vast proportion. Now if your numerous contributors would kindly lend a hand, and send you 'Notes' of the bee-lore of their neighbourhood, I am sure the collection, collated as it might be when it reached your hands, and published when opportunity occurred from time to time, would be not only interesting, but instructive, as some foundation may always be found to account for the trite sayings and doings of our forefathers. If you agree with me, put this in print, and I have no doubt your responses will be Legion.—J. G. DESBOROUGH, 12 *St. Peter's Hill, Stamford, May* 9, 1881.

BEE-HIVES IN THE VOSGES.

I came up here for a few days' tour in the Vosges with the Forest pupils, and it may interest you to know that I have seen a number of the common Carniolian hives, such as they use in the south of Hungary and Austria. These hives are nothing more than long, low, flat boxes, made of four planks about half an inch thick, simply nailed together, the ends being moveable. They all seem to be 28 inches long, and vary from 4 to 6 inches deep, by from 9 to 10 inches broad. There are no frames in them at all, but the combs are built longitudinally, *and not across*, and must be regulated by some sort of guides fixed to the top board before it is nailed on. Mr. Kuntz has got eighteen of these hives, which are stocks, and *not swarms*, from Carniolia; and they have all arrived in excellent order, and have run him in less than one pound a-piece, carriage included. The bees seem to be capital workers, and are said to be more gentle than either Italians or ordinary bees, and are certainly very prolific. I shall be curious to see how they do.

Since last winter in this little village there have been built by different people, chiefly peasants, woodmen, sawyers, and others, no less than fourteen new apiaries, *all for moveable frame-hives and honey-boxes*. This is all due to Mr. Kuntz's energy, and your honey-boxes, which I gave him, and which he got a prize for last year. This is truly a model village for bee-keeping.—G. PEARSON, *May 3rd*, 1881.

WIDE FRAME ENDS.

I am glad you are keeping this subject in the front rank. Whatever some may think of closed frame-ends, I am confident they are to be the frames

of the future, and I think the ends should be made wide on both sides, which will give a distance-guide on each side, which is very important when we slide the frames to one end of the hive.

I may also inform you that I have invented a method of closing the ends of all frames, Woodbury, Standard, or any others. It can be done in a minute. If I visit your show at London, I will bring with me a body-box, with my invention, and drop a few frames into it, so that you can examine it for yourself. In the event of not getting up to see you, I shall be very glad to send the box to Southall.—A Cockburn, *Honey Grove, Cairnie-by-Keith, N.B.*

BEES POISONED BY THE DIGITALIS PURPUREA, OR FOX-GLOVE.

Last summer I had a large quantity of fox-glove plants, cultivated varieties, and very beautiful in bloom, at the same time a quantity of Canterbury bells growing near them, and in flower. I was much struck to find that a great number of the working bees were lying dead in the flowers of the Canterbury bell. Day after day I watched with much interest the movements of the bees, and found that after they had fed for some time on the flowers of the fox-glove they became stupid, and after leaving the fox-glove they went into the flowers of the Canterbury bell, and, as a rule, died shortly after. Query—Did they die from the poison got in the fox-glove alone, or did it depend upon their coming in contact with the flowers of the Canterbury bell? I could not find any dead bees on any other plant or on the ground near by. —Alex. Paterson, M.D., *Fernfield House, Bridge of Allan.*

A FRAME HIVE FOR IRISH COTTAGERS.

Having got an incentive from reading Mr. Lyon's description of his cheap English Cottagers' Hive, I commenced to make one with the following result. I set my mind to have a box as near to the common body box as possible. This I got in one of Jas. Kirk and Co.'s Satinet soap-boxes, sent here from America. They are very common amongst grocers now, and can be procured for 6*d.* each; they are made of pine, with sides over half inch, and ends almost an inch thick. The ends being thick suit well to put the ends of the bars on. The body box holds nine bars and a dummy, which thickens one of the otherwise thin sides: the boxes having lids and bottoms which can be utilised in the hive's construction. The first thing to be done is to take a piece of the lid and raise the sides an inch above the ends. Then a very thin piece covers up the ends where the ends of the bars are intended to rest, next two pieces of old or new zinc for the bars to rest on, 1½ inch broad, tacked on with shoemaker's brass rivets. This done I commenced to make my bars; for which I bought 8 feet of ½ inch by 9 inches broad, which made all the light work I had to do. The 8 feet 9 inch broad by ½ thick of clean spruce only cost 5*d.* retail, and I worked it rightly, although I am no carpenter nor the son of a carpenter, but had to borrow all my tools while I was at it. I cut a 5-inch long slit for an entrance-hole in the end; took a piece of the lid to make an alighting board, 4 inches in the centre and run out to nothing at the ends, nailed this firmly to end of bottom, and the body box was complete. I used distance-pins of the brass shoemaker's rivets.

The cover was the same kind of box, so I made it 3 inches lower at the back to give it a shed roof slope. I took the idea from the drawing of Abbott's 'Irish hive' I had seen in *Bee Journal*. Two narrow fillets down the roof cover the joint, and a sun crack, keeping out the wet, and also giving it a neat, elaborate appearance. Plinths, two inches broad all round the cover, make it sit on well and firm, and the hive is finished, all but paint, which can be got handy now-a-days in tin canisters at 6*d.* each.

I have given my hives 2 coats with oak varnish for 4*d.* And now that it is finished, and with so little trouble, I can encourage all cottagers and farmers to go ahead. My hive only cost me 14*d.* as my grocer would not charge me for the boxes, but had I paid for them it would only cost me 2*s.* 2*d.* Being 1*s.* for boxes, 5*d.* for ½-inch spruce board, 5*d.* for tacks and nails and zinc, and 4*d.* for two coats of paint.

With a narrow key-hole saw I ripped the top bar of each frame for comb foundation, and widened it enough to allow the foundation to go up through and rivet on the top.

A quilt can be made from any old thing about the house, such as an old bed quilt, or old quilted petticoat.

Those who want to try the bar-frame system need not plead expense now, for I have demonstrated that a good, durable bar-frame hive can be made by one's self for 2*s.* 2*d.* at most. I have done it, and am intending to do it again, as I am one of those who would have to stick to the straw skeps on account of the expensiveness of bar-frames that are sold. I have written this, Mr. Editor, for cottagers and small farmers, and I hope you will find room for as much of it as you think suitable and profitable for your readers.—J. Kennedy, *Comber, Co. Down, Ireland.*

THE STEWARTON HIVE.

I regret to find by last month's *Journal* your able correspondent, Mr. Thos. William Cowan, again charging full tilt at my Stewarton as it loftily looks down on its compeers of the apiary, much too high for his simile of the stepping-stone from the straw skep to the moveable-comb hive. When I sent my explanatory remarks on the discussion at the meeting of the British Bee-keepers' Association, I did not then expect I was launching on the troubled waters of controversy; but as your correspondent seems to wish it, I have no objection to take a look at his fresh arguments.

Mr. Cowan sets out by saying, 'I do not wish to contrast my honey harvests from the moveable-comb hive with any other person's from the Stewarton.' But unfortunately for the consistency of his reasoning, *he did it*, and, to turn the scale against the Stewarton, threw in 89 lbs. of the 'watery deposit.' Next comes, 'Besides adopting several variations in the working of Stewartons, I have also carried out strictly the instructions given by the "Renfrewshire Bee-keeper" in the *British Bee Journal*.' This sounds somewhat contradictory, if Mr.

Cowan carried out strictly my instructions in working, whence the variations?

Then follows, 'Your correspondent has evidently had no experience with the extractor, or he would not call extracted honey "that watery deposit crude or extracted."' Now, although I do not pretend to possess an equal experience with the extractor as your correspondent, it so happens I have an extractor, and used the above expression advisedly. A large proportion of our Scotch honey won't extract, including the entire produce of our heath-clad hills, the sealed as well as unsealed refuses to budge. Mr. Cowan maintains, 'Extracted honey from the body of the hive is in every way equal to super honey minus the comb,' this is a position I feel sorry to be obliged to take exception to; the frames from the body of the hive contain, beside pollen and brood, sealed and unsealed honey; when the former is uncapped both descriptions of honey are thrown out together and commingle on the principle of 'the little leaven leavening the whole lump.' Whereas by the draining plan every experienced bee-keeper keeps the unsealed watery deposit scrupulously apart; with us the latter is usually given back as feeding to bees. Last autumn all stocks were so exceptionally independent of feeding, the unsealed was allowed time to consolidate in lower strata in jars, when the watery was poured from off the top. Although I do not believe that the crude honey of the flower undergoes any chemical change in the body of the bee, nor yet in the twice-swallowing-and-disgorging Pettigrewian theory, still 'evaporation' is not sufficient to remove the water crude honey contains. I am of opinion it is sucked off, or, in other words, extracted by the bee before the cell is sealed.

Many springs ago a very populous stock located in a high staircase window, and being found short of stores, it was continuously and liberally fed, which the internal warmth of the house enabled the bees to take down rapidly. While in its situation,—north aspect with a very low external temperature,—no bee durst venture abroad. One forenoon the wind suddenly chopped round to the south, the sun broke out brilliantly, and quite a cloud of my little prisoners disported themselves with great glee, and while crossing and recrossing each other's tracks emitted a thin, thread-like jet of clear fluid, doubtless the water extracted from the food: the sight of that sweetened shower is difficult to forget. Then, again, every bee-keeper who knows anything of the delicate aroma of the finest pure honey should at all times encourage its production, particularly by cottagers, in supers, to avoid unpleasant association with the cast-off habiliments of the nursery. There is a good story told by Boswell in his Tour of our Western Hebrides with his illustrious friend Johnson, that, having at no little trouble collected the ingredients for a pudding, he left them with their cottage hostess with instructions she should prepare and boil them in a clean cloth, and was horrified to find, on his return with the great lexicographer, she had used for the purpose the article which came most readily to hand,—a child's dirty night-cap!

I have already endeavoured to show that perfect equality in all the parts of a bee-hive is uncalled for, that the form and arrangement most in accord with the natural procedure of the insect makes the better hive. Who but the merest novice would exchange the honey end combs with the frames of the central brood-nest?—which the form of the Stewarton happily prevents, that they fit their proper position in every hive is all that is requisite.

If, according to your correspondent, 'bees are more inclined to extend their brood chamber laterally,' why does he continuously propose to split the cluster by wedging them apart with empty combed frames set in the centre and so spread the brood? Are the bees not the better judges of what brood they safely cover? It was this, doubtless, which induced our Editor to emit his warning note so opportunely. There are bee-keepers like commercial men prone to spread their wings too far and come to grief. The wide-spread army when the cold spell comes has to fall back towards the centre, and abandon the outposts; even a small handful can at times securely defend the narrow defile: so the Stewarton with the brood compact in the centre of the cluster, the fine glow of heat emerging passes upward to keep that overhead warm.

Afford but bees the opportunity and they will soon demonstrate their predilection for concentrating their brood in the centre of the cluster, and in a downward direction. Why the very circumstance of the queen first egging the area of brood almost simultaneously either side of the central comb to economise the heat nullifies the spreading theory. For the more convenient filling of three table glasses, I last season placed three prime swarms in as many deep straw skeps. Raising them frequently off the board, I looked up to note the progress of the work; in every case the central combs were wrought down continuously, till close to the boards, before those of the sides were elongated to any extent.

I readily admit that there were 2-inch wide super-bars used in the south before the Crystal Palace Show, for the very good reason there were Stewartons there previously. These bars and the admission of the honey-gatherers to the supers by end openings formerly alluded to were both excellent features picked up from off the Stewarton, the stepping-stone to the oblong hive.

In the following sentence your correspondent possibly alludes to one of the 'variations' he has introduced into the working of the Stewarton, which may partly account for his want of success with that hive. He says, 'For the "busy man" the Stewarton is useful, as it enables him to get some honey at the end of the season.' This, coupled with his remarks on the thickening of the cell-cappings, I never had an opportunity of observing, shows how very little he knows of the anxiety with which the workers of the Stewarton watch for the supreme moment when super No. 1 is seen from the central windows to be sealed out, when off it comes, and No. 2 in the pile descends to take its place. They are thus sedulously watched to preserve their purity, and stimulate to further effect, and so on till the end of the season, and there then remains nought else on but what Beau Brummel styled 'our failures.'

Your correspondent asks why I describe the usual oblong frame-hive as 'inelastic,' and I reply because it has a fixed breeding-space,* when this becomes full, and the bees build out to avoid swarming, and thus lose the results of the season, there is no alternative but to remove the supers or sections, as the case may be, empty comb-frames substituted for full ones, queen sought for, royal cells excised possibly both in body and sections; and if thieves are attracted a free fight sets in, the whole operation in a hot, sunny, swarming day, is not enviable, which in the Stewarton is altogether avoided by simply adding as much space either below or above, to any extent, and to meet any emergency.

As to the concluding paragraph of Mr. Cowan's communication, I totally disapprove of setting down bee-hives on the ground, even although previously covered with saw-dust. On our moist west coast it is absolutely

* We have no wish to interfere between two such doughty champions of truth, as they each see it from his particular stand-point, but would remark that in our longitudinal principle of hive-construction elasticity of brood-chamber is a special feature. We confess to a belief in interchangeability of frames being most helpful to bee-keepers, and would point out that, except in the shape of the frame, our longitudinal hive is in the character of a Stewarton placed horizontally, and that anything mechanical that can be done with the latter at top or bottom, can be done with the former at front or rear. A wholesome controversy between gentlemen who are in earnest can have only a beneficial result; they will doubtless discover all the weak places in each other's armour, to the edification and advantage of all bee-keepers.—Ed.

necessary to keep their contents dry by elevating at least eighteen inches above the ground, and on their glazed fire-clay pedestals at that height they are in addition secured from becoming a rendezvous of mice, snails, earwigs, and suchlike vermin. In all my experience as a bee-keeper, I have never had a colony blown over. They are rather too solid for that, in full working order they are a good lift for the arms of a strong man. True, my apiary is well sheltered with old trees and a high garden-wall immediately behind. The boards are buttoned to the pedestals, and each added box to the pile is securely lashed with stout cord from corner to corner of the weighing hooks. A bee-keeper is unworthy of the name who would keep his bees in an 'exposed' situation. If there is no hedge or other natural protection, what is to hinder him with an upright or two and a few boards to shelter them from the blast, which would soon repay the outlay?

The Octagon hive and system of bee-keeping, which has for a couple of centuries afforded 'good results,' are not slightingly to be displaced from the front rank. It was the first hive, so far as I am aware, by any record which introduced the separate honey compartmental arrangement or shallow super; decidedly the first to carry sectional supers; the first bar-hive, although these were, in earlier attempts, of an improper width and fixed: these I was privileged to correct and to introduce the frame; and it is now nearly a quarter of a century since I first successfully employed the Stewarton as a hive moveable and interchangeable in all its parts; and for the last eighteen years its every frame and bar have been furnished with home-made embossed wax-guides. It, therefore, did seem rather late in the day to find it described before the British Bee-keepers' Association by so well-informed and leading an apiarian as Mr. Thos. Wm. Cowan to be worthy of an 'intermediate position between the straw skep and the moveable comb-hive;' and now relegated to a position as antiquated in idea as the days of our great-grandfathers!—A Renfrewshire Bee-keeper.

DYSENTERY AND WINTER MANAGEMENT.

(*Concluded from p.* 20.)

The two hives referred to last month were not the only two that puzzled me, because, during the months of May, June, July, and part of August, other two hives occupied the same site, and the number of bees ejected from these hives daily were so numerous that they made little or no progress. On dissecting the bees, without exception all contained water, and many of them had the pubescent hairs removed; and at first I thought they were infested by a parasitic fungus, and that they were suffering from the same disease as were those black bees described by Huber and by you to a correspondent in a recent number 'that they were wild bees.' On the return of my bees from the heather, most of the hives occupied different sites from those they did before. I observed that, although the bees had been away for two months, many of the bees returned to their old site. Here, again, I thought the dead bees were strangers, but a close examination proved I was wrong. The case was becoming desperate. Everything was tried; specimens were sent to professors for their opinions with instructions to examine thoroughly the spiracles or breathing apparatus. But it was no use; it seemed simply deaths they had no interest in. As a last resource I tried the heal-all or universal cure, viz. whisky, although believing and knowing that it was simply alcohol, which reduced to alcohol the honey it came into contact with, and that sporules of disease are not killed by it. Still, I tried it. What will one in desperation not do? These two hives were special favourites, both being Cyprians, one pure, the other crossed with a Ligurian drone, extraordinarily prolific, and good workers. One of these, although nearly decimated, a few hundreds in the hive, would be dying at the rate of 200 to 300 daily; 100 on an average were dead every morning, and many more thrown out through the day. As the saying is, when no hope is left, so I felt resigned, became more calm, thought of the smoke from the funnel of the steamer that would not vanish, examined and compared every hive, tried the site as to amount of current, examined minutely position of condensed vapour on top of covering, tried the entrance, and found all right. Where the fault was it was difficult to say, after going from one hive to another, I observed everything was the same, and in their structure not different from the rest of my hives. There was not the slightest trace of damp or evacuations inside the hives: from the moment the bees were attacked, they became languid, the antennæ drooped, and they breathed heavily; not one of them could get passage, and shortly after the first attack could not fly; the floor had to be cleared of dead every two days. This is the only stage of the disease that a bent wire is called into requisition. My only hope now was to save the queens, but with such severe frost it was easier said than done. Another look at the top of the hive, and bringing what science I knew into action, I put my hand into my pocket, took out my knife and divided the ventilation, and set a current agoing, proving it by threads of the spider; and from that moment the disease was stayed.

Now it will be obvious to the merest tyro that the origin of abdominal distension results in foul brood. These two hives were faultless so far as construction was concerned, but the site had an influence which destroyed the balance; the *carbonic* gas, instead of being carried off by ventilation at top of roof, was held in suspension; and as it cooled it passed down through the covering, poisoning the bees. Had the hive been perfectly close above it would have been safer for the bees, because it might have found its way out at the door, but the damp left behind would have been injurious; and as it was, had there been a very small opening at bottom of roof, the heavy gas would have found its way out there; or what would be as good, if every hive had (as all mine have) a ventilator in floor; although, unfortunately, I had them all closed, the carbonic gas would have fallen through the grating, and fresh air would enter by the doorway, and the bees would not be affected. It is quite obvious to me that the cause of abdominal distension, in all its stages, is carbonic gas. That the fact of bees managed in the most primitive style has often an entire immunity from disease, is due to the imperfection of their domicile.

While pointing out these facts, I by no means advocate the former state of things to be allowed to exist, but rather to take the lesson and improve upon it, removing the defects and providing a remedy in the proper way. Draughts must be avoided, but fresh air must be admitted and the vitiated expelled. To accomplish this in every case may be more readily said than done. The hives above mentioned were affected simply by locality. At this moment it has occurred to me that if some of the Bee Societies would take this subject up, and offer a handsome prize or prizes for an essay on the most perfect plan of wintering and ventilating hives, with diagrams showing how the air percolates the many galleries in a hive, how the fresh air can be admitted and its course, and how the carbon is expelled and its course; if this could be done it would be a step in the right direction, and would base bee-management on true, scientific principles, without which there is no certainty at the start how the bees will survive; and the different location of the bees in the hive must be well considered, as it is proven that hives every way alike, the bees may be ensconced in different places of the hive, which alone of itself may be the means of one being healthy and the other diseased.

I flatter myself that I understand how to ventilate an enclosed space, but it is a very different thing—which I do not—how a bee-hive with its many combs should be

ventilated. There is a sort of panic at present amongst many as to placing the combs transverse to the entrance, but I would advise caution as to this course until more light is thrown on the subject.*

Some will, perhaps, say a quilt overhead makes all right. To this I say not at all times, because when the heated and expanded vitiated air is cooled before it is carried off it immediately falls back to the interior of the hive, poisoning the bees in its descent, and is absorbed by the honey—all carbon having an affinity for carbonic gas—causing the change in the honey which is the cause and origin of foul-brood. An opening at the bottom of the roof would allow the carbonic gas to escape when it accumulates overhead, and an opening in the floor, when it accumulates in the hive, would let it escape; but the latter-mentioned might cause a draught, then it might become otherwise injurious. The practice of closing bees in during snow is a bad one, and I was pleased with Mr. Cheshire when I saw the announcement of his contrivance to prevent robbing, and the bees from coming out during snow; but it occurred to me that the one small tunnel was insufficient to insure safety to the bees. There should, in my opinion, be always two openings, one for the ingress of fresh, the other for the egress of foul air. The bees themselves when propolising their entrances invariably have two ares. From what I have said it will appear plain that I disbelieve the theory that cold (if the bees are kept dry) is the cause of dysentery or of spring dwindling; nay, I have proven it to be the reverse. When I observed this the thermometer was standing at 3° below zero, and the two hives mentioned with only a mere handful of bees are humming like tops;† so we must look for something else as the cause of spring dwindling. I am disposed to argue from facts, a thing some object to; therefore, as the foregoing are facts, so will the following be as to the cause of *spring dwindling*.

The ill-conditioned state of a hive from carbonic gas is one of the worst forms. Hives suffering from that gas during all seasons are known by the many ejected bees, and during winter by many bees leaving the hive and not returning. If you watch your hives during cold days for several hours, and count the number of bees that leave and do not return, it will give a fair approximation of the decline of the hive, and what it will be by early summer.

Feeding is another cause of spring dwindling, either in late autumn or early spring. In the former case, as I have already shown, the young bees become distended through accumulated fæces, having been deprived of a purifying flight; and in the latter case they are encouraged to come out when the weather is unfavourable, and so the hive dwindles. My experience is, the best hives are those that never require feeding.

Continually pottering amongst your bees is another great inducement to spring dwindling, because when bees are not getting honey robbers are always on the look-out. The moment a hive is opened they are sure to get access, unobserved by the disturbed bees, carrying away a load, soon returning with large numbers apprised of the booty. The queen in many cases is killed, and in many others leaves the hive unobserved: and a fertile worker or an unimpregnated queen takes her place in about two weeks. But should the queen escape unscathed, the workers' time is taken up defending the hive from the pillagers introduced by the manipulation, and the hive instead of becoming prosperous rapidly dwindles down.

There is another form of spring dwindling which is aggravated through feeding when pollen is scarce. Five years ago a number of my hives breeding extensively dwindled away as almost to be worthless: the young bees as they were hatched were ejected, few of them were of full size, nearly all dwarfs or apiculas. A want of pollen was the cause, the weather was such that the bees could not get abroad to collect pollen from flowers or pea-meal, but were apparently anxious to carry on breeding, and had economised the pollen to be equally divided amongst the larvæ.

I can now look back for the last forty years on bee-keeping—it was then as it is yet with many. The hives intended for stock were set apart in August, and arranged then to stand the winter, avoiding the slightest molestation after, thus preserving the bees and conserving the powers of the queen until her proper time to deposit eggs in the cells, which in due time would be hatched and brought forth perfect bees, without that destruction which often takes place where so much artificial work is carried on. In the former case success is almost always certain; while in the latter, disappointment is often if not the rule.—A Lanarkshire Bee-keeper.

* Does our experienced correspondent believe this to be a new idea?—Ed.

† Is not this humming made in the effort to generate heat? If so, their healthfulness under the circumstances is doubtful.—Ed.

Echoes from the Hives.

Smarsdale.—The Journal.—'Occasionally I have seen in the *British Bee Journal* a grumble respecting its price, all I can say is, it has been worth more than double the price to me, and I should not grudge 1*s.* for it. I wish that you could re-issue a few of the first volumes; I am sure you could get subscribers, as doubtless there will be many bee-keepers like me who did not know of its existence until it was for ever too late. Hoping we shall have a good summer: my bees have all wintered well through following the instructions of the *Journal*.'—T. C.

New Zealand.—'This is a glorious climate, and bees might easily be kept breeding all the year round, but people take up with a thing readily enough at first if some one else will take all the trouble, but soon become apathetic, and then things die of inanition. There is one noble exception, a man named Broadley at Kaiapoi, who has gone into the business with a will; but the firm who bought *twenty tons of honey last year to make blacking of*, did not make it pay and won't take any this year, so I don't know what the producers will do with their honey.'—J. I.

Wingfield, Slinrone, Ireland, May 9.—Early Swarms.—'I regret to say I lost a swarm yesterday out of a straw hive. I had no idea the hive was ready for swarming, or I would have swarmed it artificially; it showed no previous symptoms at all. I sent two men after it, but they were not able to keep up with it. It is the earliest swarm I can remember in this part of the country. The weather has been splendid for the last week, and I can already see fresh honey being deposited in outside combs. The hive which you transferred for me last September at Parsonstown into a frame hive is now very strong, and I am just going to move the bees into a Combination hive which I have made.'—R. T. C.

High Wycombe, May 23.—'I have not heard of any swarms about here yet, and I am afraid they will be very late and scarce. I shall be very glad to attend to anybody's bees if help is wanted.'—W. Martin, *Plummer's Hill*.

Banbury, May 24, 1881.—'I had my first swarm this season on Sunday, the 22nd. It came out of a bar and frame-hive containing a stock, to which I put one of the Cyprian queens you sent me last autumn. The other Cyprianised stock (you sent me two queens) is in a 16 × 12 straw-skep, and is very strong and promising. I have not yet been able to discover any decided difference in appearance between the Cyprians and the Ligurians; but I have noticed the Cyprians abroad when the other stocks have been quiet. They seem hardy and very active, and I have no doubt their introduction into an apiary will be of great value to the owner of it, as well as to bee-keepers in the neighbourhood. The first swarm

of the season here was on Saturday, the 21st inst. at a water-mill.'—John Enock.

Waterford, May 25, 1881.—Honey Resources of Ireland.—'We got in thirty tons of honey last season from the country round here, all in the old-fashioned straw skeps, the bees all smothered. The quantity surprised us, as we had only about one ton from the country the previous season (1879), and thought the stocks had nearly all perished; this fact proves the extraordinary fecundity of bees.'—G. White & Sons.

[And it also proves the extraordinary prolificness of Ireland's bee flora.—Ed.]

Coldham Vicarage, Wisbech, April 25th.—'My bees are doing remarkably well, several of the hives are full of bees, one I shall be compelled to super lest they should show a disposition to swarm. In this locality bees have wintered well. Some stocks are dead, starved, but you cannot wonder at that, for the cottagers will take up the heaviest stocks, leaving the lightest to stand their chance of surviving the winter. Honey is now abundant.'—W.

Queries and Replies.

Query No. 384.—*Making Artificial Swarms.*—(1.) In making artificial swarms from frame-hives, should there be any more than one brood-frame taken out of the old stock? (2.) Should the brood-frame that is taken from the stock-hive be placed in the middle, or at one side of the new hive? How many frames of foundation should, as a rule, be given it at first? and how should these be placed? Would it be better to divide off half the hive by the dummy for a few days, increasing the space gradually as required? (3.) Is it necessary that any difference should be followed in making a second artificial swarm than a first one, as I notice on page 4 of May *Journal*, you recommend taking out three frames in making second swarms? In this case, would there not be great risk of impoverishing the old stock too much?—J. P.

Reply to Query No. 384.—(1.) If frames of comb-foundation be used as recommended on page 2 of this volume, and the hive is fit to swarm, no brood-comb is necessary. (2.) When a comb of brood is used, it should be put between foundation and enclosed by dummies. There should be as many frames as the bees can cover, and they should be gradually increased, as already explained. (3.) It is *very* necessary that a difference should be made between the first and second operations. No. 2 is a division of the stock when there are no queens, and three frames, with the flying bees, will ensure, as nearly as may be, an equal division of its strength, and the bees, having no young brood to attend to, will speedily work out the foundation given to them. It must not be forgotten that nearly half the brood will have hatched out of the three frames before removal, so that if frames of foundation be given in lieu of them, the 'weakening' feared will scarcely be felt. Without foundation, the young queenless bees would build drone comb; but with it worker-cells can almost be commanded.—Ed.

Query No. 385.—*Combs, Foundations, and Guides.*—'Having some good frames of combs to distribute among several swarms, should I put them all together and the frames with foundation on each side, or put the latter between the frames with comb, also in hives with some frames filled, some sheets of foundation, and other frames having only narrow strips, should the frames filled with comb foundation be all placed together or alternately with the frames having narrow strips?—D. S. P.

Reply to Query No. 385.—If its perfect healthiness can be relied on, a frame or two of comb is an undoubted advantage in a hive that the queen may at once commence egg-laying, and if possible such combs would be well placed intermediately with frames of foundation. Having, however, full combs, frames of foundation, and frames with guides only, we should prefer to put the frames with guides between the full comb in one hive, and, unless a spare comb could be afforded, to place the frames of foundation by themselves in another, in such numbers as the swarm can conveniently cover to the very outside, and add others from time to time in the centre of the nest.—Ed.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

Bee Body.—*Removing bees from roof.*—The easiest way will be to get into the roof, smoke the bees to make them gorge, cut away their combs, and bring them free of bees to a room below, where, without molestation from their bee owners, those containing brood should be fitted into frames in the usual way, and put into a hive. The hive should then be taken into the roof and placed as near as possible to the position of the original nest, and the bees allowed to run into it. If desired the combs can be utilised amongst stocks in the garden, and the bees be caused to take possession of an empty hive as a swarm. In either case when collected in their hive, they may be treated as in ordinary cases and left to work there, or sent away until they have forgotten their old place of abode.

Boston.—*Foundations.*—Any foundation or even plain strips of wax may be used for guides for bees to build along, but when whole sheets are to be used they should be of best make, strong enough to bear the weight of the bees, and easily fashioned into comb, otherwise they will not be so labour-saving as they are intended to be.

Dix Leslie, Fife.—*Humble-bee's Nest.*—One of the best receptacles for these is a shallow bee-glass with ventilating hole in the centre. It should stand upon a floor-board hollowed to receive some dry moss for the nest to lie upon, and to permit the entrance of the bees. The latter appear to prefer a tube to pass through, a foot or more in length. The glass must be kept warm by outside wrapping. Last year we had several nests of humbles, and they were objects of very great interest, not the least curious feature being the difference in size and shape of the bees, which varied from that of a small pea to that of a large acorn. As regards position, ours were all placed near the ground, in sheltered places, and well covered.

Identifying *Nom de plume.*—We are sorry we cannot oblige our correspondent. When a contributor withholds his name and address it is evident he does not wish to be annoyed by private correspondence.

Castle Hedingham, Essex.—Many thanks for your letter; you will find our idea of cheap hives on another page. The brown worms are the larvæ of wax-moth, they live upon wax and destroy the combs. The clean drone combs having no larvæ in it would do well as attraction combs for supers.

Removing Bees.—Bees may be removed on a hand-barrow a quarter of a mile in winter, and set down in their new locality without danger. Kindly consult index of last volume for other query: we cannot spare space for repetition.

Transferring to Clean Hives.—May be done on any fine day. It was quite right not to disturb them during cold, chilly weather. When bees carry pollen it usually indicates the presence of a fertile queen, and in that case breeding is certain to ensue.

Wood-Foundation Warping.—Of course it warped; there was nothing to prevent it doing so. If instead of cutting the sheets of foundation small enough to '*hang*' inside the frames, you had split the frames and nailed them on both sides and all round the sheets, the foundation would have been '*fixed*,' as recommended. More than half the difficulties and condemnations that are reported in respect of improvements in bee-keeping arise from those who do not use them properly.

CALEDONIAN APIARIAN SOCIETY.

INSTITUTED 28th OCTOBER, 1874.

Hon. President . . . THE RIGHT HON. THE EARL OF ROSEBERY.

THE Society will hold its EIGHTH ANNUAL SHOW of BEES, HIVES, and HONEY, at STIRLING, in connexion with the HIGHLAND and AGRICULTURAL SOCIETY OF SCOTLAND'S Show, on the 26th, 27th, 28th, and 29th of July.

The following is the PRIZE SCHEDULE:—

BEES.

NOTE.—No article, on any condition, will be allowed to be removed from the Class during the Show, but a separate space will be allotted for the exhibition and sale of Bee-keepers' Appliances.

1 For the best Hive for observation purposes, all Combs to be visible on both sides, stocked with Bees and their Queen ... Highland and Agricultural Society's Silver Medal. Silver Medal. Bronze Medal.

*2 For the best Stock of Cyprian, Ligurian, or any other Foreign Bees ... ... Silver Medal.† Bronze Medal.

* The Bees to be exhibited living with their Queen in Observatory Hives. All combs to be visible on both sides.

† This Prize is given by the British Bee-keepers' Association.

HIVES.

All Hives to be fitted with Guides ready for use.

3 For the best Bar-frame Hive on the Moveable Comb principle, with Cover and Stand complete, stocked with Bees and their Queen, showing Super arrangements in full operation, or Duplicate Hive ... ... Silver Medal. Bronze Medal. Certificate.

NOTE.—Exhibitors in Classes 4, 5, and 8, must prefix a Note stating the points these Exhibits possess.

4 For the best Moveable Comb Hive. This Hive must be exhibited in duplicate, firstly for Summer use, with facilities for harvesting Honey; secondly, with arrangements for Wintering. Silver Medal. Bronze Medal. Certificate.

5 For the best and most perfect Bar-frame Hive, with Super, or set of Sectional Supers, and Cover complete ... ... Silver Medal. Bronze Medal. Small Bronze Medal.

*6 For the best Frame Hive for general use—the work of an Amateur or Cottager. Silver Medal. Bronze Medal. Certificate.

*7 For the Four best New Inventions or Improvements in Hives ... ... Silver Medal. Bronze Medal. Certificate.

Carpenters and Hive-dealers are not allowed to compete in this Class.

* Duplicate Hives may be exhibited for the purposes of explanation, without any Entrance Fee being charged. In Class 7, the Judges shall exercise their discretion as to whether a less number than Four are of sufficient merit to warrant a Prize.

8 For the best Straw Hive of any description 5/0 2/6

COMB FOUNDATION.

9 For the best sample of Comb Foundation made of pure bees' wax, to consist of 5 lbs. thick (Worker Cells) for Stock Hive, and 5 lbs. thin, for Supers, manufactured in the United Kingdom, with price per pound attached at which the Exhibitor is willing to supply any quantity ... Silver Medal. 5/0 2/6

10 For the best two Samples of Wax, in cakes of not less than 1 lb. each 7/6 5/0 2/6

HONEY.

Quality to be taken into consideration.

11 For the best Two Supers, above 20 lbs. each	20/0	10/0	5/0
12 For the best Super above 20 lbs.	15/0	10/0	5/0
13 For the best Super above 10 lbs. and under 20 lbs.	10/0	5/0	2/6
14 For the best Exhibition of Super Honey from one Apiary	15/0	10/0	5/0
15 For the best Super of Honey, not being Sectional Supers. The Super to be of wood, straw, or of wood in combination with glass or straw	7/6	—	—
16 For the best Glass Super of Honey	12/6	7/6	5/0
17 For the best Twenty-four 2-lb. Sections of Comb Honey	10/0	5/0	—
18 For the best Twenty-four 1-lb. Sections of Comb Honey	10/0	5/0	—
19 For the best Twelve 2-lb. Sections of Comb Honey	10/0	5/0	—
20 For the best Twelve 1-lb. Sections of Comb Honey	10/0	5/0	—
21 For the best Exhibition of Run or Extracted Honey, in twenty-four 2-lb. glass jars	7/6	5/0	—
22 For the best Exhibition of Run or Extracted Honey, in twenty-four 1-lb. glass jars	7/6	5/0	—

COMESTIBLES.

23 For the best Liqueur or Wine made from Honey, with recipe attached (not less than two quarts); age of Wine to be given ... ... Silver Medal. Bronze Medal. Certificate.

24 For the best Mead or Beer made from Honey, with recipe attached (not less than two quarts) Small Silver Medal. Small Bronze Medal. Certificate.

25 For the best Cakes made with Honey, with recipe attached (not less than 2 lbs.) Silver Medal. Bronze Medal. Certificate.

The Samples to which 1st Prize is awarded, in Classes 23, 24, and 25, shall become the property of the Society, to be used at the Judges' Dinner.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 99. Vol. IX.] JULY, 1881. [Published Monthly.]

Editorial, Notices, &c.

JULY.

The first half of the summer of 1881 will long be remembered by bee-keepers in this country for its generally excellent bee weather, and for the early harvest of honey that, thanks to modern improvements, bee-keepers of the advanced school have been enabled to secure. Improved hives and appliances, that render manipulation easy, and secure the storage of the coveted nectar in convenient receptacles, apart from the brood; comb-foundation, that enables the bees to produce perfect combs in one-fourth the usual time, and at one-tenth the the natural cost, are great levers in the science of bee-keeping; and, aided by the extractor, whose purpose is too well known to need description here, results have been obtained which, to bee-keepers of the old school, appear fabulous. In Scotland, where the season has not been so favourable, the accounts are not quite so encouraging; but being about three weeks later generally, there is time 'in hand' for the 'cannie' of that mellifluent land to catch up, and possibly surpass, the productions of their southern friends.* In Ireland, thanks to the incursion of the deputation from the British Bee-keepers' Association last autumn, great things have been accomplished, and associations formed, and in full working swing, while a spirit of enthusiasm has been evoked, whose evolution, carefully tended and advantaged, will be of immense value to that glorious land of floral beauty.†

What a thousand pities it is that Her Majesty's Ministers and the Members of Parliament, as a rule, know so little of the value of bees!* If, happily, they understood one-half as much as they ought to, they would know enough to understand the importance of educating the public in respect of their culture; and if children were taught in our national schools, the superstition and absurd fogeyism, which are the curse of bee-keeping, would gradually die out of the land. While the absence of watermills and factories in Ireland is being strikingly deplored, and their erection advocated, as a means of improving the condition of the Irish people, a great natural factory exists, and pours its rich product over the whole country; yet, through the lamentable ignorance and blindness of both rulers and people, 99 per cent of it runs to waste, and many thousands of pounds are annually lost to the nation. This is no idle assertion. At Waterford, last year, Messrs. White and Sons received thirty tons of honey from cottagers and small farmers in that district, which was probably not a ten-thousandth part of Nature's distillation; and a few figures will show the value of this small saving. Taking the honey at 6*d.* per pound only, thirty tons would realise 1680*l.* sterling, and, estimating the wax produced at one ton (a low estimate), value 1*s.* 6*d.* per pound, an additional sum of 160*l.* would be produced, or a total of 1848*l.* sterling in Waterford alone, by a most wasteful and brutal system of bee neglect and smotheration. What can be done in Waterford could be done in every other county in Ireland, crude though the practice be, and a product obtained of 59,136*l.*; and. as this could easily be increased a hundredfold (and more), it may safely be asserted that 5,000,000*l.* worth of honey is

* We were exceedingly sorry to learn from a visitor, a gentleman of high position at Edinburgh, that in Argyllshire bees in skeps have perished almost entirely, through the cold of last winter following a wet autumn, and the general neglect of feeding.—Ed.

† A gentleman visitor from Ireland inquired of us the other day when we would recommend that supers should be put on his hives? He listened patiently to our dictum in reply, 'When there is an abundance of bees and fine warm weather;' but when we added, 'and plenty of flowers and blossoms,' he quickly rejoined, 'and that's just always, everywhere,'—an observation literally true except in winter.—Ed.

* That our rulers understand very little indeed of bee-culture, as practised in this country, may be inferred from the fact, that their Commissioner at the Great International Exhibition at Paris in 1878 sent home a report that was ridiculously absurd, meagre, and untrue; yet, excepting in this paper, it remained unchallenged, and allowed to remain a 'base' on which governmental inaction will be defended.—Ed.

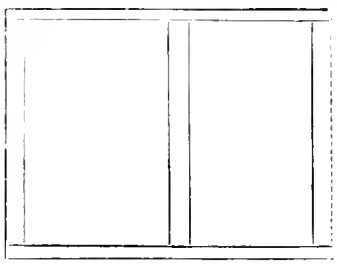
wasted in Ireland every average year, or about five times the poor-rate of the whole country. This may be a startling assertion, but it is a fact. There is a painful side to the question, judging from the Waterford returns. The thirty tons of honey were obtained by the destruction of the bees that gathered it! and, assuming that every hive yielded thirty pounds of honey, and each contained three pounds weight of bees (a very moderate assumption), there were THREE TONS OF BEES DESTROYED, which, at five thousand to the pound, gives a total of 11,200,000 in round numbers, and at 1s. per lb. shows a loss of 326*l.* sterling for bees, through ignorance, in Waterford alone. Ireland is not unique as an example of wastefulness in this respect. England, Scotland, and Wales, which is dreadfully in the background, having no Association or Bee-organization, have much to answer for; and on whom does the responsibility rest? If our rulers will not make bee-keeping a branch of school education, they might well afford two or three thousand pounds a-year to the leading Associations, to enable them to send half-a-dozen or more experts through the kingdom, to teach the people thrift in regard to bees and honey. In Ireland such help would be invaluable; and, though honey might eventually be cheapened by the increased production, it would set free many thousands of pounds-worth of corn, roots, and sugar at present used in brewing and distillation. This subject is worthy of grave consideration.

HONEY EVERYWHERE.—The glorious weather gives promise of a grand harvest, and, by all accounts, there is honey everywhere now that the clover and lime-trees have begun to bloom, and supers are rapidly being filled and removed, and the extractor brought daily into action.

GETTING BEES INTO SECTIONS.—Some bee-keepers find a difficulty in persuading bees to go up into the sections when placed above the hive; but, thanks to a safe excluder, the remedy is an easy one, and bees can be 'forced,' if the term be a proper one, to take possession at a few minutes' notice. The natural affection of bees for their brood is well understood, and one or two sections filled with it in a sealed state and put into the crate, will ensure the presence of bees, and they will commence building forthwith. Worker-brood should be selected and the queen excluded in the usual way with long-holed zinc-excluders. If drone-brood be put into the supers, the zinc will detain them there when they have hatched out. This method should not be practised with weak stocks for obvious reasons.

SECTIONS NOT COVERING FRAMES.—Many bee-keepers are puzzled through not knowing how to proceed when only a small number of sections are used, as is often advisable. Six or eight one or two pound sections, with a piece of glass at each end, make a nice little super; but when no adapting-board is used, they leave a part of the frames uncovered. In such case we cover the exposed parts with strips of carpet or other available material, and keep them in place with anything that comes to hand—pieces of board, brick, tile, or slate, being each useful and effective. Bees do not need upward ventilation when supers are being filled. Oiled baize, used for table-covers, would be a good material for summer use.

ZINC ADAPTORS.—These are highly useful and easily made. The zinc can go by post, whereas an adaptor ready made can not. Five pieces of wood, a quarter of an inch thick, should be laid together, as indicated, to form a



frame of the size of the hive. The zinc should be of the same size, and, when laid on and tacked on all sides, it will be complete as an ordinary adaptor. When American sections are to be used upon it, they should be raised a quarter of an inch above the zinc, or they will cover and close nearly all the perforations. To effect this, some $\frac{1}{4}$ inch strips should be tacked round the other side, and across the zinc where the rows of the sections rest and touch each other. Any part of the adaptor not covered with sections should be covered as above directed.

STOPPING THE BREEDING IN HARVEST TIME.—We have had many inquiries on this subject, and advise the removal of the queens when no special value is attached to them, and honey is the object desired. The removal of a queen may not prevent swarming, but the swarm will be in the nature of an after-swarm, having a young queen, and if hived and returned at night, further swarming will, as a rule, be prevented. This is a safe way of dealing with bees where honey is preferred to swarms. The removed queens can be kept in boxes with some comb and honey and a few dozen bees, and may be re-introduced after the glut is over, if young queens are not fertilised and laying, or they may be introduced to hives from which artificial swarms have been made. Coming from strong stocks they cannot be considered useless.

HOW QUEENS ARE LOST.—Happening to look

into a hive to ascertain the condition of a young and fertile Syrian queen, that had been introduced a few days before, we were struck with dismay at finding a ball of bees on the bottom of a frame; but on separating them, we found a young black queen that had fled from another hive, and, fortunately, the Syrian all right. Had the young interloper come into contact with the Syrian, the more lithe and active black would most likely have slain the heavier laying one, and reigned in her stead. Such accidents, doubtless, often take place unobserved, and cause much disappointment and loss.

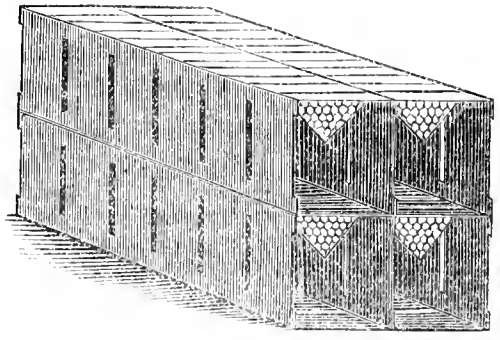
Packing Swarms for Transit.—A cheese-box with large hole at top and bottom covered with perforated zinc, or the top covered with strainer-cloth, is an excellent vehicle for the transport of swarms. A wooden box with high sides and large square of zinc in top and bottom does well, and a flat-topped straw skep, with centre hole covered with perforated zinc *on the inside*, and tied over the strainer will answer; but in each case there should be ledges of wood across the outside, to keep them off the floor and permit the passage of air through the zinc at the bottom, and some means of similar kind to prevent the ventilation at top being closed. If there is no bottom ventilation and the swarm be a strong one, they cluster on the cloth or zinc and shut out the air from those below; but with a free, upward current they cluster round the sides of the vessel, which, by-the-by, must be of sufficient roughness to permit good foothold. Swarm-boxes made of planed wood are bad: the bees cannot hang on, and so are tumbled in a heap on the bottom, and, suffocating each other, they vomit their honey and become a sticky mass. Large boxes, say 14 inches cube, covered entirely with perforated zinc, are generally safe; but sugar-loaf skeps, with narrow tops, form suffocating wells when inverted. If going very long journeys, a frame of comb and honey, well tied round, should be placed across the skep or box and firmly secured, or a wet sponge and lump of sugar should be substituted.

Small Swarms for Ligurianising.—In the first number of the *British Bee Journal*, published in 1873, 3000 of which were sent out, in about 13,000 leaflets, scattered broadcast over the earth, and in many thousand *Journals* since published, we have recommended, that instead of purchasing expensive queens for introduction to alien bees, amateurs should purchase small swarms to which queens have already been united, and build them up into stocks by giving them combs of brood, or placing them in hives of combs containing brood, from which the bee-population had just been driven. The process was invented in the interest of amateur bee-keepers, to prevent the loss that, through inexpertness, often made (and, we are sorry to say, still makes) queen-uniting an expensive luxury. In early days we paid the penalty of inexperience, with queens at 30*s.* ahead in September, home-bred in Devonshire, the pioneer county of bee advancement; and, while anxious for the improvement of bees by the introduction of superior queens, we took the earliest opportunity of advising that the operation called 'uniting' should be left with experts, and all possibility of loss to the amateur avoided. The principle has not, however, been very favourably received in this country, and many hundreds of valuable queens are annually sacrificed by amateurs; but in America, where little of value is risked, one-pound swarms have become 'the rage,' and Ligurianising is therefore safe and easy, and with frame-hives the process is simple in the extreme. On receipt of the small swarm, two or three frames of brood, in all stages, and one or two of empty comb, but no bees, are taken, and placed in a hive on a permanent stand, the brood-comb being kept side by side, and the pound of bees and the queen are put in possession, and when covered the work is done. The hatching bees quickly increase the population, and other combs or frames of foundation may be given from time to time as may be thought necessary. With skeps, all the bees are to be driven out to form a swarm, which may be sold or dealt with in the usual way, and the hive, free of bees, put on a new stand, and the bees put into it. To free the skep of straggling bees, which might be dangerous to the queen of the swarm, chloroform, or preferably puff-ball, fumes should be used. If the former, make a small hole in the ground, put in a handful of rag, or a small handkerchief, and cover with a piece of perforated zinc, pour the chloroform on to the rag, and set the hive over it immediately, closing the entrance with earth, and in a few moments every bee will be paralysed, and can be shaken or brushed out of the hive. If puff-ball be used, its fumes may be driven into the hive with a smoker, and in five minutes the hive can be cleared in a similar way. We know of no really cheaper, better, or safer way of establishing improved races of bees.

Preventing Swarms when Hives are Supered.—It is often said that lookers-on see most of the game, and, though not intending to point a moral or adorn a tale, we cannot help acknowledging a weakness, notwithstanding our strength in other respects, in favour of the Stewarton principle of eking when supering, and giving the bees work at both ends of the pile, dividing their attention, cooling their hive and their ardour for adventure; and while giving space for the storage of wealth, inducing them to keep to their hive and collect it, instead

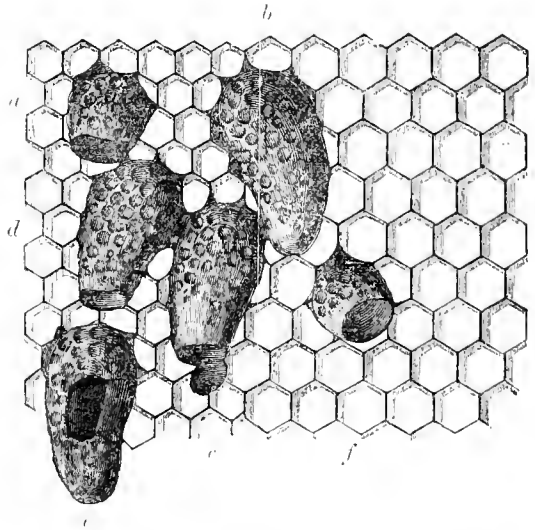
of swarming. In this sense the Stewarton hive is 'the hive of the busy man,' for having applied super and eke, he may 'go his ways,' and leave the rest to Nature. If the season has been good he will have a harvest; if otherwise, he will, as a rule, find his bees 'at home' unweakened by swarming, and probably strong enough to stand the winter with no more help than a little wrapping. We confess also to a weakness for hives in which all the frames are interchangeable (*pace* 'Renfrewshire'); but that need not prevent our taking a hint from the Stewarton system and applying it to our Combination principle of hive, to which it is eminently adapted. Objection is sometimes made to the Combination principle, that its 'great' length (about 30 inches) gives the bees much labour in carrying the honey to its back parts; but considering that the Stewarton hive as used by the great master of the system, 'the Renfrewshire Bee-keeper,' often attains a height of nearly six feet, and is considered the best hive in the world, the objection can have no weight. Its length, and the frames being across the entrance, put the Combination on the same parallels with the Stewarton, distinguishing it from any other whose frames are all interchangeable, for its brood-nest can be eked at any time by pushing the whole of the contents of the hive towards the rear, and putting frames with guides or foundation in the space made vacant in front of the brood-nest. By this arrangement there can be no excuse for bees lounging outside, and as a matter of fact, they will not do so, they will cluster within and build comb, and having plenty to do, will scarcely dream of preparation for swarming.

Sections in Rear or at Side of Hive.—We are often surprised that so many who use sections for honey do not use them in the simplest way, and save all the cost and trouble of section-frames, crates, and so on. Packed together at the back or side of the brood-nest, as indicated in the woodcut, they would form a



nice pile, and by a little contriving would fit any hive. A Woodbury, for instance, is 14½ inches wide; seven of the sections abreast will be 14 inches, and leave room on each side for a piece of glass, which can be wedged close to them, or less can be used, and dividers put in between them. A dummy at back or side will keep all close, and if they be a little too high or low, a strip of wood laid against the opening left would be all that is needed to keep the bees enclosed.

Queen-cells.—Many amateurs are inquiring how they may distinguish between worker, drone, and queen-cells; and to give a better idea than words alone will convey, we re-insert a woodcut and explanation.



The cells on the right are four to the lineal inch, and are drone-cells. Those to the left are five to the inch, and are those in which workers are bred. *a* is a queen-cell in course of formation; it has thin edges slightly drawn together. *b* is a completed, sealed, or (often called) ripe queen-cell. *c* is the same when the queen has newly hatched, having its end like a flap, which sometimes closes up again, misleading the amateur. *d* is the same with the flap gone, which is the condition in which newly-vacated queen-cells are usually found. *e* is a queen-cell with the side torn open, showing that an elder sister has hatched out; and *f* is an old queen-cell, the edges having been cut down, thickened, and left like an acorn-cup.

Limnanthes Douglasii.—This is a most valuable bee-plant, coming into bloom in the interval between the orchard blossoms and white clover, and lasting nearly a month. We have had a stretch of it about seventy yards long, and three to four wide, and it has been literally a *heap* of flowers, and bees have been upon it in droves. It is an annual, and seed should be sown in autumn. It is perfectly hardy, and if allowed would grow on a turnpike road. Its floral abundance has astonished and delighted our visitors. Its flowers are of silver and gold.

Another Comet. — The comet of 1881 appears to have taken astronomers by surprise, so suddenly and unexpectedly did it burst into view; but if it be the harbinger of a honey-glut such as occurred in July of 1874, when we were similarly visited, we will say, 'Welcome, little stranger,' and advise everybody to lay in a stock of sections, supers, glasses, jars, pots, pans, and pipkins to contain it. Whether this kind of wandering atmosphere in search of a world, with its nebulous attendants, catches the sun's heat and adds warmth to our nights, or in any other occult way sweetens our fruits and flowers, are matters beyond our 'ken'; but comet years are usually remarkable in that respect, and we trust this of 1881 will not prove the phenomena to be simply co-incident.

A SIGN OF THE TIMES IN BEE CULTURE.

Messrs. Abbott Bros. have made 3152 lbs. of pure bees-wax into comb-foundation during the present season, nearly the whole of which will have been used ere this appears in print. More than a ton of this (to bee-culturists) precious material was sent out during six weeks prior to June 24, and they have not received a single complaint of any one sheet 'sagging' or tearing. Its use, at a moderate calculation, must have saved the bees the labour of collecting and expending about 80,000 lbs. of honey, besides saving a fortnight of the most valuable part of the season. Great Britain, and Ireland too, are really awakening to the value of bee-keeping, and, with other promoters, we may rejoice in the belief that we have not laboured in vain.—Ed. *B. B. J.*

NEW ZEALAND FLAX.

This has a high reputation as a honey-plant, but no one in England appears to keep any seed that will grow. May we, in the interest of bee-keeping 'at home,' ask our New Zealand friends to send us a small packet for trial? We will cheerfully remit costs of packing and postage, or will return a like quantity of the seed of the new plant, Limnanthes.—Ed. *B. B. J.*

CURE FOR STINGS.

The following, partly printed and partly written, nearly worn out paper, was recently unearthed in looking through some old books. It was sent to us for reproduction, and we publish it, hoping it may be useful.—Ed.

Cure for Stings.—The following antidote for the sting of wasps, and other noxious insects, may be worthy the attention of our readers:—'I don't think it is generally known, though it ought to be, that a cure may be immediately obtained by taking a leaf or two of the broad-leafed Plantain (*Plantago major*) and bruising it, by rubbing it on the part stung, and in ten minutes' rubbing, or less, all the pain and inflammation will cease. A daughter of mine was, one afternoon, stung in the fleshy part of the arm, and before I could get the plantain-leaf the part had swelled to the size and length of my finger; but I had not applied the above half a minute before I perceived the swelling abate, and in two minutes she was well, except a little itching on the part stung. I have used and recommended it for twenty years, and never knew it fail in a single instance, either for a wasp, a bee, a gnat, or a bug. Of course the sooner it is applied the better. The plant cannot well be mistaken; it grows in most foot-paths in the fields, its leaves for the most part laying flat on the ground. The seed, growing on one stem, is used generally for feeding birds.'

BRITISH BEE-KEEPERS' ASSOCIATION.

The monthly meeting of the Committee was held at 105 Jermyn Street on Wednesday, June 1. Present,—Mr. T. W. Cowan (in the chair), Mr. J. M. Hooker, Mr. D. Stewart, Mr. H. Jonas, Rev. E. Bartrum, Mr. F. Cheshire, and the Assistant Secretary. The minutes of the last meeting were read, confirmed, and signed. The balance-sheet for the month ending May 31 was also read, showing a balance in hand of 45*l.* 16*s.* 5*d.* . Mr. Jesse Garratt attended the meeting in reference to the arrangement of the show at Tunbridge Wells on June 6 and following days. The Assistant Secretary reported the arrangements made for the attendance of the Bee Tent at the several country horticultural shows, stating that the demand for the Tent from all parts of the country was very great; and several applications had been refused on account of the dates of the shows clashing together. The judges for the various divisions of classes at the forthcoming Show at South Kensington were made as follows:

Classes 1–9.—Mr. W. N. Griffin, Mr. W. Freeman, and T. F. Ward.

Classes 10–20.—Mr. B. Harding, Mr. J. G. Desborough, and Mr. H. Bostock.

Classes 21–28.—Mr. R. R. Godfrey, Rev. F. S. Scott, and Mr. F. R. Jackson.

Classes 29–30. Mr. W. Carr, Mr. C. E. Fletcher, and Rev. J. L. Sisson.

Driving Competition.- Rev. J. L. Sisson, Mr. Carr, and Rev. F. T. Scott.

It was resolved to hold a quarterly meeting of county representatives at 3 o'clock on the first day of the show, and a general meeting of the members of the Association on the second day (July 27); and the Secretary was requested to write to the Baroness Burdett-Coutts (the President), requesting her to preside at such meeting, and to communicate with H.R.H. the Princess Christian in respect to her distributing the prizes on Thursday, July 28.

Mr. Cheshire promised to deliver a lecture on Tuesday, July 26, the first day of the show, at 5 o'clock.

We are requested to state that, since the date of the meeting, the Hon. Sec. has communicated with the President of the Association, and has received a reply to the effect that, in the event of her Ladyship being in town at the time of the show, she will be glad to preside at the general meeting, and in the meantime would communicate with H.R.H. the Princess Christian respecting the distribution of prizes. We are also requested to state that the Committee of the Association have prepared for the use of county Associations in making arrangements for exhibitions of bee-driving, &c., at local horticultural shows, the following which may be obtained upon application to the Assistant Secretary:—

(1) Form of advertisement for bills or local newspaper, 2*s.* per 100. (2) Instructions for removing bees to local shows, and to Secretaries having to make the necessary arrangements, 3*s.* per 100. (3) Labels for the transmission of Bee Tents by railway, &c., 3*s.* per 100, post free.

BEE SHOW AT HUNGERFORD.

This show took place in connexion with the Marlborough and Pewsey Vale Agricultural Show at Hungerford, and was a marked success. The Tent of the British Bee-keepers' Association was on the ground, and the manipulation gave every satisfaction.

Prize List.—Best observatory hive stocked with bees, 1st, 10*s.*, Rev. W. E. Burkitt, Buttermere; 2nd, 7*s.* 6*d.*, Rev. E. Davenport, Hungerford.—Best moveable comb-hive, complete, 1st, 10*s.*, Mr. Velvin, Marlborough; 2nd, 7*s.* 6*d.*, Rev. J. H. Dixon; certificate, Rev. W. E. Burkitt.—Best and most economical complete hive for moveable combs for cottagers' use, 1st, Rev. E. Davenport; 2nd, Rev. W. E. Burkitt.—Best collection of bee-furniture, 1st, 10*s.*, Rev. J. H. Dixon; 2nd, 7*s.* 6*d*, Rev. W. E. Burkitt.

Honey.—Best single super, 1st, 5*s.*, Rev. W. E. Burkitt; 2nd, 2*s.* 6*d.*, Mr. Velvin. Mr. Burkitt also took first prize for some very nice extracted honey, best sample of bees-wax, and best bee-feeders.

Greatest number of queen-wasps, 1st, 2*s.* 6*d.*, James Davenport.

Best and strongest straw-skep of bees—equal 1st, a prize hive, W. Rolfe and Mr. L. M. Crow, Marlborough; 2nd, frame-hive given by Rev. W. E. Burkitt, Rev. E. Davenport.

Cottagers only.—Best and cheapest moveable comb-hive, 1st, 7*s.* 6*d.*, Benjamin Lawrence.—Best made flat-topped straw hive, 1st, 7*s.* 6*d.*, George White.

Extra prizes were awarded to the Revs. W. E. Burkitt and E. Davenport for articles not specified in the prize list.

BEES AND BEE HIVES AT THE BIRMINGHAM SHOW.

At this Show there was a competitive display of bee-hives, honey, and appliances connected with apiculture, which proved by no means the least interesting department of the show. The prizes in this section were partly subscribed by the Warwickshire Bee-keepers' Association, a body which, with its indefatigable hon. sec., Mr. J. N. Bower of Knowle, is carrying on a most commendable work in promoting bee-keeping, and the adoption of more intelligent, humane, and profitable methods in the management of bees. In order to make this department the more interesting to the generality of visitors, prizes were offered for observatory hives, stocked with bees and their queen, which should afford the most complete view of the bees at work upon their combs. Three admirably contrived structures of this class were shown—one by Mr. Walton of Leamington, which received the first prize, and two by Messrs. George Neighbour & Sons of 127 High Holborn, London; and throughout the Show a large number of persons found much pleasure and instruction in watching the operations of the bees and their behaviour towards their queen. There were two classes for moveable comb-hives—one for hives for general use, and the other for cheaper structures suitable for cottagers. In the former there were four entries, and in the latter six, all of them being well-constructed and useful hives. Among the hives of this description, which were adjudged to be a capital collection, the first prizes were taken by Mr. J. Walton of Leamington, and Mr. R. McGregor of Banchory, Aberdeen; while the second awards were given to Messrs. Neighbour & Sons, High Holborn, London, and Mr. C. Foxon of Croft, near Leicester. There was a large collection of appliances, including centrifugal honey-extractors, improved packing-crates, impressed wax-sheets, feeders of various kinds, and every description of bee-keepers' requisites, the most extensive, and at the same time the most successful, exhibitors being Messrs. G. Neighbour & Sons. The exhibition of honey, considering the early period of the year, was highly satisfactory both in quantity and quality. With the exception of some French honey, shown by Mr. Alexander of Bull Street, Birmingham, the competitors are all from Warwickshire and Staffordshire, and their exhibits showed that the Midlands were by no means unfavourable for bee-culture. Mr. J. Walton received three first prizes for comb-honey in sections and supers, and extracted honey in jars. Mr. J. N. Bower was also an exhibitor of some capital samples, but being one of the judges, his exhibits were of course excluded from the competition.

Prizes.—Beehives.—Observatory hives, stocked with bees and their queen, 1st, Mr. J. Walton, Weston, Leamington; 2nd, Messrs. G. Neighbour & Sons, Holborn, London. Moveable Comb-hives.—1st, Mr. J. Walton; 2nd, Messrs. Neighbour & Sons; 3rd, Mr. J. Shaddock, Weston, Leamington. Moveable Comb-hives for cottagers' use.—1st, Mr. R. McGregor, Banchory, Aberdeen; 2nd, Mr. C. Foxon, Croft, Leicester; 3rd, Mr. J. Walton; 4th, Mr. J. Shaddock.

Collection of Appliances used in bee-keeping (exclusive of hives).—1st, Messrs. G. Neighbour & Sons; 2nd, Mr. J. Walton.

Honey.—Best display of honeycomb in sections.—1st, Mr. J. Walton. Best display of honeycomb in one or more supers of any material.—1st, Mr. J. Walton. Best display of run or extracted honey in glass bottles or jars.—1st, Mr. J. Walton; 2nd, Mr. F. Lythall, Offchurch; 3rd, Mr. J. Alexander, Bull Street, Birmingham.

Beeswax.—For the best display of pure beeswax, 1st, Mr. J. Walton.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION IN IRELAND.

The annual county show of this prominent Association will take place in Lord Lurgan's demesne at Lurgan about the last week in August, when prizes will be awarded for bees, hives, and honey. Full particulars may be obtained of G. Greer, Esq., Dungannon, Ireland; and it is to be hoped that some useful exhibits will be sent from England.

ESSEX BEE ASSOCIATION.—CYPRIAN BEES.

On Tuesday evening, May 25, Mr. F. R. Cheshire delivered a lecture on the 'Wonders of the Bee-hive' at the Shire Hall, Chelmsford, to a limited audience, and was well received. After the lecture and a vote of thanks, Mr. Henry Copland said he had a quantity of Cyprians which at times were very pugilistic, and he wished to know if there was any way of properly manipulating them. The lecturer replied that the class of bees spoken of were, as a rule, remarkably gentle; if their temper was roused it was not easy to subdue them, but he had never known them yet to lose their temper. The Rev. G. Raynor said, 'I think occasionally you do find it, but very rarely.' Mr. Cheshire said he always carried a smoker with him whilst handling bees, and always handled them carefully, which latter point the Rev. G. Raynor laid down as the only necessary thing in successful manipulation. Mr. Debnam confirmed this statement, and the meeting separated with a vote of thanks to the Chairman.—(From the *Essex Weekly News*, May 27, 1881.)

[We are sorry we cannot confirm the good character for gentleness given to the Cyprians. Such character came with them when they were exhibited at the Crystal Palace Show by Messrs. Neighbour & Sons in 1875; and those present, when they were handled on that occasion, were so impressed with their ferocity that their 'purity' was doubted, and reference made to the authorities at the British Museum. Since then we have had considerable experience with these bees, having received some direct from Cyprus, and they have invariably proved most fightable; and Syrians may be put in the same category. As workers and breeders they are both good; but the best workers we have ever known are the cross

from the Syrians. They, however, are not easily subdued. It is a matter of memory that Mr. Cheshire has twice been entrusted with a Cyprian queen with the understanding that he would breed queens for distribution amongst the Committee of the British Bee-keepers' Association; is it too much to ask that their fate, and the character of their progeny, should be reported?—Ed.

WRINGTON AND BURRINGTON BEE-HIVE AND HONEY SHOW.

The Horticultural Society for the above district will hold their fifth annual show at Roper's Field, Wrington, on the 10th prox., when prizes of value will be awarded for hives, bee-appliances, and honey. This show will come between the Taunton and Weston-super-Mare Shows—a fact that may be worthy of notice by intending exhibitors at either. Mr. J. Newton Jenner, the local Hon. Sec., will give any information needed.

FIFESHIRE BEE-KEEPERS' ASSOCIATION.

This Association, established 19th April, 1879, at Markinch, is now in a highly prosperous state, having a goodly array of noble and distinguished patronesses and patrons, a thoroughly efficient working Committee, and upwards of ninety subscribing members. Mr. White of Falkland gave a most interesting lecture on the 'Anatomy of the Bee,' and was greatly assisted in his explanations by the British Association diagrams. His dissection of the bee showed great ability and experience, and the audience, which was a large one, was intensely interested in the somewhat novel but highly instructive proceeding. There will be a show of bees, hives, honey, and appliances on Saturday, the 27th August next, at Balbirnie Gardens, and the prizes, amounting to 12*l.*, are open to all comers. We are very pleased to observe that exhibitors in the hive and appliances class must undertake to supply any number of similar articles at the prices quoted to their exhibits. The Hon. Sec. is Mr. John Blair of Markinch, who will be happy to give all possible information.

BEE TENT AT LISMORE, CO. WATERFORD.

We are glad to learn that Mr. Traynor, Tinahely, Co. Wicklow, has accepted an engagement from the Lismore Farming Society to manage a Bee Tent on the 1st and 2nd of August next. Will any member in Ireland volunteer to help him?

WARWICKSHIRE ASSOCIATION COUNTY SHOW.

The County Show of this advancing Association will be held at Rugby on September 6 and 7 next. Full particulars may be obtained of J. N. Bower, Esq., Hon. Sec., Knowle, Birmingnam, who will forward schedule of prizes offered on application.

NORTH WALSHAM.

Lecture on Bees and Bee-Keeping.—A second and concluding lecture upon this subject was delivered in the National School-room, on Wednesday evening, at North Walsham, the 11th May, by the Rev. J. L. Sisson, B.A., rector of Edingthorpe. The lecture, which was abundantly illustrated with diagrams, models, specimens of bees and hives, and the most approved apiarian appliances of the present day, was of a very interesting character. The chair was taken by the vicar of the parish, who, at the close of the lecture, moved a hearty vote of thanks to the rev. lecturer. The net proceeds of the lecture, amounting to 1*l.* 10s., are to be devoted towards the purchase of new chairs for use in the National School-room at meetings, concerts, &c.

Flowers and Bees.—At the monthly meeting of the Dundee Horticultural Association, Mr. John Stewart, Letham Mill, President of the East of Scotland Bee-keepers' Society, read an instructive paper, illustrated by drawings, on the 'Relations of Bees to Flowers.' In the course of his remarks he said:—'Orchard and garden fruit-growers are almost entirely dependent on bees to fertilize the blossoms so as to "set" the fruit. The stigmas of strawberries, blackberries, apples, pears, &c., come to maturity long before their anthers; hence bees are necessary to convey the pollen from the old to the young bloom. In gooseberries the anthers are ripe long before the stigmas, so that self-fertilization is impossible; and, unless there are bees to transfer the pollen from the young to the old bloom, the ovary always withers and drops off along with the flower. The showy colour and sweet scent of flowers attract bees. The variegated lines and spots guide them to where the honey is situated. At the time when the visits of insects are to benefit the flower the honey flows more freely. Thus bees get their supply of food, and for this treat they fertilize the flower. Bees, therefore, depend on flowers for their subsistence; in return, the very existence of many flowers depends on bees.'

A Swarm of Bees in the Strand.—On Tuesday afternoon a swarm of bees appeared in Wellington Street, Strand, and settled on the outside of the *Army and Navy Gazette* office, causing for awhile some obstruction to the traffic. The attention of Mr. Tegetmeier, the well-known naturalist, was called to the fact; and, having obtained a box, he succeeded very shortly in hiving the swarm.

SHOWS AND BEE TENT ENGAGEMENTS IN 1881.

BRITISH BEE-KEEPERS' ASSOCIATION.

July 6.—Saffron Walden, Horticultural Show.
July 7.—Horticultural Show at Aylesbury.
July 7.—Horticultural Show at Wimbledon.
July 13.—Horticultural Show at Hawkhurst.
July 13–18.—Royal Agricultural Show at Derby.
July 26–August 1.—Annual Show B. B. K. A., South Kensington.
July 26–29.—Caledonian Apiarian Annual Show at Stirling.
July 30 & August 1.—Horticultural Show at Southampton.
August 17 & 18.—Shropshire Bee-Keepers' Association's Annual Show at Shrewsbury.
August 18.—Berks and Bucks B.K.A. at Maidenhead.
August 25.—Horticultural Show at Wantage.
August 26.—Sandy Horticultural Show.
August 30.—Horticultural Show at Long Buckby.
August 31.—Horticultural Show at Horsham.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

July 2.—Lecture at Heanton Satchville, N. Devon (Lord Clinton's), by Wm. N. Griffin, Esq., and Rev. J. G. Dangar, M.A.
August 11 & 12.—Exhibition at the Torquay Aquarium and Winter Gardens. Hon. Secs.: Wm. N. Griffin, Esq., Alphington, Exeter; and Rev. J. G. Dangar, M.A., The Training College, Exeter.

ESSEX BEE-KEEPERS' ASSOCIATION.

July 13.—At Chelmsford.
July 19.—At Shoeburyness.
July 20.—At Maldon.
July 26.—At Springfield.
Sept. 23.—At Great Dunmow.

HERTFORDSHIRE ASSOCIATION.

July 20.—Herts Agricultural Show at Hatfield.
July 22.—Waltham Cross Cottage Garden Show.
August 1.—Hitchin Temperance Fête.

August 2.—Frogmore Cottage Garden Show.
August 10 & 11.—Hertfordshire Bee-keepers' Association's Annual Show at St. Albans.
August 17.—Rickmansworth Cottage Garden Show.
August 24.—Much Hadham Garden Show.
Sept. 8.—Horticultural Show at Harpenden.

WEST KENT ASSOCIATION.

July 16.—Annual Show of the Association at the West Kent Horticultural Show, Camden Park, Chislehurst.
July 16.—Farningham Rose and Horticultural Show.
July 20.—Tonbridge Show.
July 20.—Bexley Heath Show.
August 3.—Yalding Cottage Gardeners' Society Show.
August 4.—St. Mary Cray, Cottagers' Horticultural Show.
August 10.—Frant Cottagers' Association.

REPORT

Of Messrs. ABBOTT *and* CARR *to the British Bee-keepers' Association, on their late visit to Ireland.**

As your representatives accompanying the Bee Tent on its mission to Ireland for the advancement of bee-culture in that country, we have the honour to report that, in accordance with arrangements previously made, we started from England on the 7th August last, and arrived at Waterford on the evening of the 8th, after a rough passage from Bristol, and returned on the 5th September ensuing, *viâ* Greenore and Holyhead.

Our peregrinations with the Tent having been described in the *British Bee Journal*, it will not, we think, be necessary to recapitulate the minor events therein recorded. We, however, beg to state, with a view to completeness in our report, that we duly attended the Royal Agricultural Society's (Ireland) Show at Clonmel, the Agricultural and Horticultural Show at Maryborough, the Agricultural Show at Newry, and the Horticultural and Flower Show at Newtownards, as had been arranged by your Committee, and one other at Parsonstown, arranged by ourselves in conjunction with the Rev. J. M. Aldridge, of Eyre Court Vicarage, Co. Galway, at each of which the very deepest interest was created, and a strong impulse given to bee-culture on the improved principles your Committee sent us to expound; and we have every faith that the good impressions produced will be effective and lasting.

We beg to report that through default on the part of the Railway Company to whose charge the Tent had been intrusted for delivery at Clonmel, no such delivery took place, and it (the Tent) was not handed to us until some days after the show was over, when we intercepted it at the Waterford Boat Station.

At Clonmel the Agricultural Show,† which was a grand one, extended over three days, viz., August 11, 12, and 13; but, in consequence of the non-delivery of the Tent, the first of those days was entirely lost to us as exhibitors of bees, but, by great exertions, and at considerable expense, we extemporised a tent in time for use on the second and third days, and were able to make an exhibition of manipulation, which, though held under great disadvantages, caused intense excitement, and created a keen interest in the objects of our visit.

In justice to ourselves and to your Committee, we feel it right to remark on the almost total absence of the considerate assistance we hoped to have received from the authorities at the show. Excepting the allotting of our 'site' and receiving passes to the 'enclosure,' we were left to our own devices, and but for the invaluable help afforded by the Rev. G. A. Procter, of Tullamelan, and by Brother Joseph, of the Abbey, Loughrea (who, at their personal cost, furnished us with bees and an observatory hive, and rendered great help in the Tent by relating their personal experiences in support of our efforts to instruct the visitors), we had no help. So little care, indeed, had been bestowed in the pre-arrangement of our visit, that the 10th August had been named in the *Bee Journal* advertisements as the day on which the show would commence, whereas it did not begin until the 11th; and a similar error had been committed with respect to the Agricultural Show at Maryborough, to which we next proceeded.

We have great pleasure in reporting here that, by the kindness of the authorities of the Waterford and Central Railway, we were furnished with free first-class passes for ourselves, Mr. Timberlake, our assistant, the Tent, and all our belongings, to and from Maryborough, they looking upon our visit as of national importance and value—an example that remained unique, except in regard to the Waterford Shipping Company's agents, who kindly remitted the charges made on the two stocks of bees we had with us, permitting them to be considered as 'passengers' luggage.'

Our experience at Clonmel having taught us the necessity for pre-arrangement with respect to future shows, we wrote to Canon Bagot, who had been credited with the promotion of our tour, hoping that the difficulties of the show just past were but a consequence of extreme pressure, but the reply was disappointing. Our letter was dated 'Adelphi Hotel, Waterford, August 14th, 1880,' and said:—'We should be much obliged if you would kindly inform us what arrangements you have made at the different places for the exhibition of bees and lectures in the Bee Tent, the date and time of the shows, the name and address of the local secretaries, and if they have arranged to have some bees on the ground for the manipulations. I suppose our next exhibition will be for one day at Maryborough, on Wednesday, August 18th; Newry Show, on August 28th; Newtownards Horticultural Show, on September 2nd; and the Royal Horticultural Show, at Dublin, on September (I do not know the date). I think you will say we created a great interest in these useful creatures at Clonmel, as a good many said they should commence keeping them on the modern improved system. From our observations in the neighbourhood of Clonmel, we should say there are scores of tons of honey annually lost in that one district for the want of bees as collectors. —(Signed) WM. CARR. Address Post-office, Maryborough.'

The reply received from Canon Bagot was as follows:

'The only arrangement I have been able to make is Maryborough, Newtownards, and Newry. The Horticultural Show, Dublin, is on the same day as *Newtownards*; besides they refused to allow the Tent in. I think you might be able to get an exhibition in Dublin; I will make inquiry for you. We ought to try an exhibition in Waterford Park.'

From this it will be seen that Canon Bagot was but slightly helpful to our cause, for we were left in error as

* The formation of bee associations in Ireland, the impulse given to bee-culture, and the awakening of the nation to the possibility of a new industry in their midst, traceable in a great measure to the tour of last autumn, have induced us to consider it desirable that the report which was presented on the occasion to the B.B.K.A. should be preserved in the pages of the *Journal*.

† That the 'coming' of the Bee Tent had produced an impression in Ireland, may be inferred from the following, inscribed on a huge banner, and paraded through Clonmel by a Land League meeting which had taken place near the Show ground:—

'In this Green Isle,
'Neath Heaven's smile,
May the bees soon thrive
In Erin's Hive.

'We drive pell mell
To old Clonmel,
To give three groans
For the House of Drones.

'In Mullinahone
No lord we own
But the Holy One
That shines upon
Sweet Slieve-na-mon;

'Who gave the soil
To the sons of Toil,
That they be fed
With daily bread.'

[And without intending to be funny,
We'd like to make it bread and honey.—ED.]

to the date of the Maryborough Show, and the others were not named in their proper order, and we heard nothing further respecting the Dublin or proposed Waterford Shows.

Arrived at Maryborough, we found that the show, advertised (to us) for the 18th August, did not take place until the 19th—a point which gave us more time for preparation in providing bees and looking about us, but was highly inconvenient to our visitors. We had the most willing help in our arrangements from Dr. Symes, the local Hon. Sec. of the Agricultural Show, so far as his multifarious and arduous duties permitted; bees were, through his kind interest, easily procured, and the show, as a first in the neighbourhood, was highly successful. Through the absence of police supervision, the ending of the exhibition was not so pleasing as it might otherwise have been, for a crowd of trespassing boys—a veritable 'swarm'—crowded us most inconveniently, and pilfered from our exhibits in a way we were helpless to prevent or redress. We are glad to record the substantial services voluntarily afforded to us in the Tent by Mr. J. Traynor, a cottager, from Tinahely, with advanced ideas of bee-keeping. Anxious to learn what we were willing to teach, he so readily fell in with the (to him) new method of manipulation as to be, with his Irish tongue, a most efficient aid in conveying instruction, and disarming suspicion of chicanery; and, we have lately heard, that he has, in the Co. of Wexford, conducted a bee show on the principles we had taught, and carried it through to a successful ending.

We next proceeded to Parsonstown, where, notwithstanding a heavy down-pour of rain, great interest was manifested in the operations, and the lectures were received with marked attention. We had substantial assistance from the Rev. J. M. Aldridge, of Eyre Court, and from Brother Joseph, of Loughrea, who brought many hives and much bee-gear to add to the display; other gentlemen also brought bees for manipulation, and but for the rain this would have been a specially excellent show. The Tent was visited by the Earl and Countess of Rosse, and by many of the influential gentry of the district; and very many others, who had arranged to be present, were unfortunately prevented by the untoward condition of the weather. Nevertheless, we are assured that much good was done.

Leaving Parsonstown, we reached Newry in good time for the show, which took place on the day announced, and here again our efforts created profound sensation. By the kind help received from Mr. James Shaw, of Priory House, Newry, we were furnished with bees, and, as elsewhere, the fact of their being Irish bees satisfied the public as to the genuineness of the manipulations. The show was held in the Market Square, which, after five o'clock, was thrown open to the public, when our Tent became a centre of attraction to a multitude, whose curiosity displayed itself more forcibly than was consistent with comfort. The ordinary exhibits of farm-produce had been already removed, but, it being necessary to wait while the flying bees returned to their hives, we found, as at Maryborough, considerable difficulty in packing up and removing our belongings, and would venture to suggest that on future tours the necessity for police supervision should be insisted on.

From Newry we proceeded to Newtownards, where, thanks to the energy and good-feeling of C. C. Russell, Esq., the local Hon. Sec. of the Newtownards Horticultural Society, and an earnest bee-keeper withal, we found everything ready, and plenty of willing help in our work. To ensure a supply of bees for manipulation, prizes were offered, consisting of money equal to the value of the bees as exhibited; and, as inducements to the lucky exhibitors to mend their ways in a bee-keeping sense, new frame-hives were included, on the understanding that the bees were to be transferred to them, which was done, though, we fear, the fewness of the bees of the individual stocks will be against their well-doing, unless they be well cared for before and during the winter, which will so soon be upon us.

As showing a marked tendency to improvement in the means of developing bee-culture in Ireland, we are glad to be able to report that prizes had also been offered for honey taken from hives without the destruction of the bees, preference being given to comb-honey in sections, and that a highly creditable display was made, which greatly conduced to the interest awakened by our efforts in the Tent, and caused anxious inquiry as to the means by which such splendid results had been achieved. The Newtownards Show being the last on the programme, its fulfilment brought our labours to a close, though we are happy in being able to state that the interesting nature of the proceedings during the tour had caused several applications for its prolongation; and we came away with a full conviction that the seed of progress had been sown broadcast in fertile soil, and that it would spring up and yield fruit to the lasting benefit of the people, in whose warm hearts there will ever remain a grateful sense of the good service rendered to Ireland in the cause of apiculture by the British Bee-Keepers' Association.

In concluding our Report, we hope to be permitted, as your agents, to record our impressions of Ireland from a bee-keeping point of view. In our peregrinations, we passed over many hundreds of miles of country,—through Munster, Leinster, and Ulster, on rail, car, and foot,—and everywhere were filled with admiration of the wondrous floral beauty of the land,* and the indisputable evidences of its general permanence for bee pasturage. There were, in addition to the usual fruit-trees, limes, horse-chestnuts, maple, sycamore, elm, birch, willows, blackberries, blackthorn, poppy, furze, broom, ivy, scabious, willow-herb, ling, clover, colts-foot, fox-glove, golden-rod, holly, burr, thistle, meadow-sweet, charlock, comfrey, cotoneaster, thyme, in wild profusion: and the ground crops of herbage were astonishingly abundant. Heather and clover (both white and red) covered many miles of mountain and plain, while field and hedgerow were filled with bee floral luxuriance.

With the immense natural advantages this condition implies, it was most painful to us to find the country almost beeless, and the people, with wide exceptions, in miserable ignorance of their value. Excepting at Clonmel and Newtownards, we saw no evidences of attempts having been made to cultivate the bees. They were professedly kept by a few of the better class proprietors or agents, but were entirely neglected, except when the sulphur-match was lighted for their destruction. Bee-keeping in Ireland consists in providing swarms with ill-made skeps of sugar-loaf shape, made of soft straw, that sinks with the accruing weight, sticks being thrust across (at any angle) from below the centre to near the crown. They are exceedingly rough both inside and out, and when stocked are set upon a stone or stool, and very little, if any, protection is given to them; and, as a consequence, they quickly become rotten, and the bees and their enemies find an easy way through them. In a few instances ekes are added to the hives to give more room; but even with this addition, we did not find a hive, other than those containing late swarms or queenless stocks, that could contain its population; and though the country was overflowing with honey, and the hives were full (?) of it, the bees were idly clustering about their homes, having nowhere to store a surplus, if they gathered it. Not anywhere, save in the two places mentioned, did we see a hive surmounted by a super, or any means in operation by which bees could be deprived

* In an early morning ramble at Maryborough, Mr. Carr gathered fifty-five distinct varieties of wild flowers in bloom, as a characteristic bouquet for our breakfast-table, a feat we did not consider at all singular.—Ed.

of their honey without their destruction; and, as a rule, the principle of driving bees, either as a means of artificial swarming or depriving, was unknown. From inquiries, everywhere repeated, we learned that bees *had been kept*, but that during the previous bad seasons they had died out, showing a want of knowledge of the necessity for, and means of feeding them, and enabling them to tide over an unpropitious season. Finally, we take leave to record our conviction, that with a fair knowledge of the science that governs the art, bee-farming would more than doubly increase the profits of agriculture, and smooth the way to comfortable independence to many who are now barely able to gain a livelihood in that beautiful, but neglected island.

WILLIAM CARR.
C. N. ABBOTT.

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

NEW PACKING FOR BEES.

I wish to make known, through your valuable columns, the suitability of a new substance for packing the interspace of double-walled hives, and beg to enclose you a specimen. I have discarded everything in favour of it, and I stuff my side cushions, and have big quilts for winter also filled with it; and I can testify to its admirable qualities. Botanists would describe it as *desiccated Sphagnum*, it being the species of moss of which the surface of all our turf or peat bogs is composed. In cutting turf this is first got at, and is called 'flow' or 'fummy,' and is of little value for fuel. I took the idea some years ago from observing that my parishioners who keep large quantities of potatoes stored in outhouses during the winter, line next the wall with dry 'flow turf,' and not a single tuber is ever injured by the frost; whereas, when this precaution is not adopted the frost penetrates even two feet of masonry, and destroys the potatoes. In fact, I know of no other natural substance, except cork, which is such an absolute non-conductor of cold and heat. And it has the advantage of lightness over cork: I should say a cubic foot of the sphagnum would weigh about one-third that of cork. Add to this its abundance, and that it it is to be had for little more than the asking. We have it everywhere in our northern bogs, and the great bog of Allen, which occupies a large district in the centre of Ireland, and from which Dublin gets all its turf by canal, is chiefly composed of it. Sphagnum moss is the material for hive-makers' packing. It pleases me so well, that I am putting it (at considerable trouble) into all my old hives.—H. W. LETT, M.A., *One of the Hon. Secs. Co. Armagh Bee-keepers' Association.*

[The moss is very light and warm, and holds fire sufficiently well to make it good for fuel and bee-smokers, and in the hope that it may lead to another petty industry, we begged our esteemed correspondent to send over a few sacks of it, that we might test the question of its economy for use here. Being 'waste' in Ireland, its collection and transport hither might put many a shilling into the pocket of 'poor Pat,' if the charges by the way are not too great.—ED.]

PROLIFICNESS OF SYRIAN BEES.—SOME OF THEIR PECULIARITIES.

I had two Syrian queens from you last autumn, with one of which I was unsuccessful in uniting, and the other one threw me a first swarm on the 5th June, second on the 15th, third on the 18th, fourth on the 19th, fifth on the 21st. The first swarm came as late as two o'clock in the afternoon; the third came as early as half-past seven in the morning, when it was raining heavily, and had been for an hour and a half. The sun had never shone that morning or the day previous. As I had never read in your *Journal* of a hive throwing so many swarms before, I should like to know if it is customary with this new race; if so, all other kinds will be left in the shade. I might add that, after the fifth swarm, I opened into the hive, but only took two bars out, one having four queen-cells; and the other two, which I put into two other hives, although past a fortnight from throwing the first one, combs were full of unhatched bees, and the hive still very strong. I wish you could have seen it. They were rather savage being disturbed, but all the swarms I hived without bee-dress or gloves; and have found them remarkably quiet, more so than any bees I ever had before, having kept bees for fifteen years.

I last year sold over 200 lbs. weight of super-honey. I have twenty hives of bees, and many other necessaries, which I value at 5*l*., which they have cleared, and stand me as well 15*l*. to the good; but I take great interest in them, and would keep them for pleasure, even if the balance was over 'the left,' as we term it in the north. Weather here only moderate.—WILLIAM W. BUTLER, *Ulverstone.*

[Multiplying into six straight away is not bad, and bears out the character they have received for unexampled prolificness. They are a wonderful race, the principle of life being marvellously strong within them; and they have extraordinary qualities in other respects. They are excellent workers, they breed very rapidly, they raise immense numbers of queen-cells, they frequently begin laying when only a few hours old, and in some instances become fertilised before they destroy the royal cells, though they appear to tear out their sisters that are near hatching. To our mind they disprove the Dzierzon theory of breeding pure drones after cross-mating—a theory which never was acceptable to us, and, in fact, is against all other experiences in animal life. The drones that hatch from the eggs laid by virgin queens are uniformly well marked with rich golden yellow, but those produced after mating with black bees are in some cases quite black. The worker progeny of cross-mated Syrian queens are all well marked, and suggest the idea that the Ligurian bee is a cross of this kind, the unevenness of colour in the Ligurian drones supporting it. As with Ligurians they vary in temper, some of the cross-breeds are so terribly fiery that they can scarcely be dealt with, while others are as meek as flies—a fact which appears unaccountable. Our pure Syrians (we have but one stock at the present time) are fairly good-tempered

while young; but a nucleus made from them that have done little work, and have grown old, are perfect little 'demons,' and care nothing for strong tobacco-smoke, though a jet be directed continuously against them. We have hesitated before giving an opinion on their qualities until experience gave authority for so doing, and even now we feel that there is much to learn of them. We formed several nuclei from them for queen-hatching purposes, and young Syrians found their way into all the hives in their vicinity; and, having grown old, show their temper on all occasions, while their foster-sisters are as good-natured as usual. They are small bees, but their cross-breed are larger and the best workers we have, and, singularly, have shown no disposition to swarming.—Ed.]

BEES DYING IN SECTIONS AT REAR OF HIVE.

I have a strong stock of bees in bar-frame hives placed in an apiary. The hive contains nine frames, 13 by 11, and are all crowded with bees, and full of brood and maggots, and as far as I can see are all well. I supered them at the back of hive with sectional supers about a week ago, and to-day (June 9) examined the supers, and found some thousands of dead bees in the sections, the supers all turned to the colour of a bright yellow; and the bees have not commenced to work in them. I may say the supers are 2-lb. ones of white poplar. I have taken them (the supers) away to-day, and confined the bees to the hive as before the supers were put to them.

Kindly inform me, first, as to the large number of dead bees; second, as to the colour of the supers, and what is to be done under such circumstances. Your reply per return of post will greatly oblige. There is a large quantity of sealed honey in the hive.—J. P. Frost, *Parham, near Wickham Market.*

[At the first blush the foregoing experience seemed against our Combination principle of hive-building: but feeling assured that there was an unexplained cause for the mortality complained of, we immediately wrote begging further information, and hazarded suggestions thereupon, one of which proved to be correct. The discoloration of the wood we felt to be due to the vapours from the suffocating bees; and from the following letter since received it will be seen that our conclusions were well founded. We have often stated in this *Journal* and elsewhere that the round-holed queen-excluder zinc permits the bees to pass with difficulty; and there is little doubt but that the hive being crowded, a great number got through, and as each bee quite fills the round hole in passing, the supply of air became too limited, and a panic ensued, when those within perished, being unable to get out. It may not be generally remembered (if observed) that in punching the perforations a slight burr or roughness is left on the underside of them, and that it is therefore more easy for bees (and queen too occasionally) to pass one way than the other; and if in the present case the burred side of the zinc fronted the section space, the difficulty of escape was greater than it would have been had the zinc been the other way round. We quite agree with our correspondent's suggestion that his experience should be published as a warning to others.—Ed.]

In reply to yours of the 9th inst. I beg to state I used the round-holed excluder-zinc between the sections and brood-nest; and although the loss in the bees was heavy, they are still very strong. On the 13th inst. I put your long-holed excluder-zinc between sections and brood-nest, and am glad to be able to inform you I examined the sections this day, and I find the bees work to and fro easily, and not one single dead bee can be seen. I thank you very much for your prompt reply, and beg to suggest that such a case as this, that is, if you think it a fit one, ought to be published in your valuable *Journal*. If so done, it might be the means of saving many thousands of lives of bees by only using your long-holed excluder-zinc.—J. P. Frost.

JUDGING SPURIOUS HONEY.

As the season for Bee Shows is now approaching, we wish to draw your attention to an important point. We are convinced that for several past years prizes have been awarded to some *unprincipled rascals*, who must have supplied their bees with sugar-syrup for supering purposes. We have excellent evidence that this has been done; and we put it to you, sir, and through you to the readers of your *Journal*, whether it is fair? Surely the first duty of all judges should be to *taste the honey* in every super, and reject all doubtful supers most rigorously. It would also be a good plan to post a placard on all obviously dishonest supers, stating the name of the exhibitor and the reason for his exhibit being rejected. This would bring some of these dishonest people to their bearings by *publicly* proclaiming them to be, what many of us know privately that they are, viz. *humbugs*.—T. B. Blow, *Welwyn* (*for several Hertfordshire Bee-keepers*).

BEES IN AN OIL-CAN.

I intended to write you sooner, giving you a description of this locality, and especially a warren covered with heather that has beautiful blossoms, but have been unable. However, an interesting circumstance causes me to write you now. When I returned home on Saturday last, my son—five years old—asked me to 'come up the garden to see a bees'-nest in the oil jar.' This attracted my attention, and he led me to an old, strong, tin oil-jar lying on its side. I saw a few dead bees about the mouth of it; and, on putting my ear to it, I found it contained a stock of bees, and they may have been in it several days, for I could see comb-formation. I noticed them yesterday and to-day, and I find they are working very briskly. Almost every returning bee seems to have lumps of white matter on its legs. The jar is 10 inches in diameter and 14 inches in length, not including the sloping top. The hole for the cork is about $1\frac{1}{4}$ inch in diameter. I want to remove them into an ordinary straw 'skep,' which is all I have available; and several methods have been suggested, but I have adopted my own (*i. e.* caution), and will let them remain as they are till I hear from you, and you will greatly oblige by a prompt reply, giving me directions; or would it be advisable to let them remain where they are? I want also to remove them about 40 yards down the garden, nearer to

my cottage. A neighbour of mine lost a swarm about ten days ago. This may be the same.—DANIEL TEER, *Dundrum, Co. Down, Ireland, June* 13, 1881.

[We advised that the bottom of the tin should be cut off with a sardine-opener, and the butt end of the oil-can inserted in the back of a hive. The bees will then be forced to work forward towards the hive-entrance, and will store the combs in the tin with honey, which can be appropriated in autumn. The moving must be done by slow degrees, a few feet only every fine day.—ED.]

FRAME-HIVES FOR IRISH COTTAGERS.

I am glad that Mr. J. Kennedy, of Comber, who writes at p. 37, is working at constructing a good, cheap bar frame hive for Irish cottagers. Your own remarks on p. 28 are also most instructive. But pardon me for remarking, cheapness is not the sole qualification to consider in wooden hives for Ireland; they must also be so constructed as to be practically useful all the year round. A hive of $\frac{3}{4}$ or 1 inch wood, such as Mr. Kennedy has made, may do in summer; but, in our climate, it is necessary to be adapted for packing on all sides, as well as under roof, with some non-conducting substance, such as chaff, ferns, or moss. A low-priced hive is almost certain to prove in the end a very dear possession, involving the loss of the swarm of bees placed in it. I know this to my cost, and would venture to caution the inexperienced not to run the risk. Of course if the hives are placed in a bee-house, enclosed on all sides, like that figured in Ribeaucourt's *Manual of Rational Bee-keeping*, of which I know several examples in this country, hives of single boards will succeed tolerably well.

The executive of the Co. Armagh B.K.A. are most anxious to place within the reach of their members frame-hives suitable for Irish cottagers, and, to induce their construction by local tradesmen, are offering prizes of 1*l.* or 10*s.* 'for the cheapest, practically useful, bar-frame hive, made by a carpenter resident in the Co. Armagh, from packing-case or other wood. Price not to exceed 4*s.* Any number to be supplied at the price named.' Being an amateur in carpentry, I have been experimenting during the past six months with various packing-cases, just to see what could be done with them; and three months back met with the boxes Mr. Kennedy has been the first to write about, and out of them I made up some Irish cottagers' hives, with outer cover, the inter-space packed with sphagnum moss, and gabled roof, which I intend to give away as prizes at the coming show of our County B.K.A., the cost of the materials being just the same as Mr. Kennedy's.

I was led to use these 'Satinet' packing-cases in preference to lobster, salmon, biscuit, coffee, or canned beef, all of which I tried, because I found that the internal dimensions were $14\frac{1}{2} \times 15 \times 8\frac{1}{4}$, which, by raising the sides either with zinc or slip of wood, makes it hold exactly ten Woodbury bee-frames. In fact, if designed for the purpose there could not be a better fit. I would re-echo Mr. Kennedy's recommendation of these boxes; and note the words '*Standard and Uniform*' which the soap-powder manufacturer has stamped in large letters, as if for our guidance, in following the advice so kindly given in your excellent *Bee Journal*, to adopt one *uniform* measurement of bar-frames as an Irish *standard*.—HENRY WM. LETT, M.A., *Ardmore Glebe, Lurgan.*

P.S.—Bees in this neighbourhood—south shore of Lough Neagh—are promising well. The stocks are strong and active. There were no swarms till the first week in June; but they have been numerous since then, and weigh from $3\frac{1}{2}$ to 4 lbs. This district is well adapted for bees, having abundance of willow blossoms in early spring, and heather and aquatic plants in autumn. As a consequence, my neighbours did not lose so many bees during the past severe season.—17*th June*, 1881.

THE AUTHORSHIP OF 'MODERN BEE-KEEPING.'

In the June number of the *British Bee Journal* exception is taken to a statement made in the *Journal of Horticulture*, in which I am referred to as having written gratuitously *Modern Bee-keeping*. The character of the Editorial is irritating enough, but I would prefer to reply to it in 'the strength of gentleness.' It is only needful now for me to say, that not only did I gratuitously write the whole of the second edition of *Modern Bee-keeping*, and the whole of the first, except a very few lines of Mr. Hunter's, retained by me in order that his name might not disappear from the Preface; but that, in addition, I designed and drew upon the blocks nearly all the cuts, and thus saved the Committee several pounds, while I even paid for the wood out of my own pocket. The Preface is nearly all Mr. Peel's, who kindly wrote it at my request, and not at the request of the Committee. As a bee-book, *Modern Bee-keeping* is wholly mine, and I am glad that the profit derived from its sale has tended much to improve the financial position of the Association. There is honour in service, and if the fact that some of this honour is falling on me has awakened jealousy in the mind of any, I can give such my pity, and hope that if too much selfishness has hindered their usefulness, the hindrance may be taken away.—FRANK R. CHESHIRE, *Avenue House, Acton, W., June* 27, 1881.

BEE GLOVES.—BEES IN BUILDINGS.

May I be allowed to reply to letters from 'An Amateur' and Mr. J. Lingen Seager upon Gloves and Stinging? When I began bee-keeping last year I wore gloves, but found that the bees would sting them, do what I could, and as careful as I could be; but on the advice of a friend was induced to try and manipulate without, and I was gratified to find I could get on much more comfortably and far easier by having my hands perfectly free. I get a sting now and then, but do not swell or feel the pain and irritation as I did last year. So my advice to bee-keepers is, Do not wear gloves at all; the sooner you get well stung the better, and the sooner will you feel it less.—ROBERT RANGER.

P.S.—I have observed lately that there is another

swarm in the mill exactly in the place where I took a swarm last year. They cannot be from the same queen I feel sure, as I completely cleared them out, bees, comb, and all. I shall leave them till the autumn this time, and add to my own stocks.

[If you want to keep bees out of the mill walls you must stop all means of entrance to them. Bees having once inhabited a place, leave an odour that for a long time is peculiarly attractive to other bees, and if it be possible, bees will repopulate it from time to time. There is an iron column at Southall Railway Station, which has for several years past been occupied by successive swarms; they always come to grief through heat or cold; but the 'lure' remains, and bees find it out and take possession. The entrance is through a 'bolt-hole.'—Ed.]

BEE-GLOVES.

Having seen in your *Journal* many suggestions as to the best kind of bee-gloves, I thought that a description of those I wear may not be out of place, if you wish to insert it for the benefit of your readers. I get an old thread glove, which fits, and cover it over thickly with cotton-wool, keeping the glove on my hand, stitching the cotton well into the glove, and going round each finger separately. The back of the glove should be specially well padded. I draw over this the largest-sized cotton glove I can get. The article is then complete, and is quite impenetrable to stings. One advantage of this glove is, that the outer one can be taken off and washed when it becomes sticky or soiled.—A Constant Reader, *Mountmellick, Ireland, June* 11, 1881.

A CURE FOR BEE-STINGS.

There is an old Scottish adage that 'the docken grows beside the nettle.' The juice of the docken leaf applied at once removes the irritation caused by nettle-stings; hence the wise provision of the bane and the antidote being found together.

The pain, swelling, and inflammation caused by the sting of a bee to a lady friend of the present writer, has hitherto had so dreadful an effect, as in one instance to require the physician's lancet, all alleviators, such as at once excluding the air from the puncture by moistened earth, soap or whiting ready to hand, and best; or applying hartshorn, spirits, tobacco, onions, Pine's lotion, &c., have had in her case very little effect.

Being the other day sharply stung on one cheek, she patiently rubbed in the juice of the docken leaf. The pain was speedily gone; and instead of having her cheek, as usual, terribly disfigured with swelling, and the nearest eye partially closed, the wounded cheek, by the time she ceased rubbing, was undistinguishable from the other; and she has asked me to communicate her cure to the pages of the *British Bee Journal*, in the hope that sufferers such as she may obtain a like benefit.—A Renfrewshire Bee-keeper.

BEES UTILISING COMB CHIPS.

I see by the May Number of your *Journal* there is some question as to whether bees will work out comb chips. Like you, I am not positive one way or the other; but I will tell you what I have lately noticed in my Observatory hive. The hive in question is constructed to hold one sheet of comb, and not adapted to receive bar-frames. I therefore gave it about an inch of your comb-foundation, which is of a golden colour; about two inches in the centre of the hive is occupied by a ventilator, so I was unable to fasten the comb under it. The consequence was, the weight of bees broke down the foundation from that particular part, and I presume it fell. The day after I noticed the bees forming a piece of comb about the size of a shilling at the bottom of the hive, of the same colour as your foundations. I am inclined to think this fallen comb was utilised, for the reason that all the comb we make here is pure white, and further, the piece of comb has not increased in size, showing that no more chips were available.—G. H. Aubrey, *Springfield, Chelmsford, June* 21*st*, 1881.

A HONEY-MARKET.

I am willing to act as agent for sale of honey on commission for bee-keepers in this district. Persons having supers to dispose of can know my terms on application. Perhaps you will give this publicity in the *Journal*.—Charles Lewis, 15 *Fore St., Taunton.*

TWO QUEENS IN ONE HIVE.

A common argument employed by the uninitiated against the non-swarming system, or that of keeping bees in colonies, is the degeneracy of their queens; but if their combs are constructed on the moveable principle, a facility which every colony ought to possess, the introduction only of young and vigorous queens to their heads is an operation so simple and advantageous that every thoughtful bee-keeper should adopt it.

Even where the above is neglected, queens of non-swarmers are changed oftener than is generally supposed. I generally place at the head of my observatory the imported Italian queen, breeder of the most beautifully-marked bees of my apiary, irrespective altogether of her age, and on several occasions have found the waning powers of their queen did not pass unnoticed by the workers, for in every instance of extreme age, notwithstanding the swarming season being over, and with receding numbers, generally but one royal cell was constructed, from a near approach to which the old queen was roughly debarred, and after the young queen emerged mother and daughter joined, and amicably reigned, being usually found on different combs, the old queen by-and-bye mysteriously disappearing.

Early this last spring I was much chagrined to find on the alighting-board the dead body (apparently recently deceased) of a favourite imported queen, last survivor of a batch purchased at the Caledonian Apiarian Exhibition at Edinburgh in the summer of 1877. I had bred from her extensively last season while at the head of a framed Stewarton, and towards autumn swept her and her offspring to

work up combs in a common skep, which they nearly filled. Failing to hear of a surplus queen amongst my bee-keeping correspondents to take the dead queen's place, and being too early to rear, I turned up the skep to estimate the possible survival of the workers for a month or two, and was agreeably surprised to find the presence of sealed brood, which subsequently matured into good worker hybrids all right, confirmatory of another example of a dual reign, and of that wonderful instinct and foresight of our little favourites in providing a successor to the throne.—A Renfrewshire Bee-keeper.

DISEASE OR ROBBERY?

I am thoroughly disgusted with the result of to-day's examination. My bees are hybrids, between Ligurian and British, and are in your Combination-hives. Up to last week they were all going on admirably, and I was in daily expectation of a swarm from two of them. This week, however, they have not seemed to be as busy as usual. This I put down to the rather cold weather and the rain which we have recently had. To-day being a warm and fine day, I asked an old and experienced bee-keeper (who has used your hives and followed your advice for a considerable time) to come down to my place, and go through the stocks with me. The first hive we opened was very savage, and on examination we found *all* the grubs and brood in all stages dead, but not at all discoloured, neither did they 'stink.' The living bees all seemed healthy. There was a queen's cell, from which we fancied a queen had recently gone out; but as my gardener declares there has been no swarm, we fancied we might probably have been mistaken. The tops of the combs were filled up with newly-sealed honey. Some of the young bees—and these were very scarce, not more than a dozen, although there are ten frames in the hive (which was full up a week ago)—seemed to have a sort of scale on the wings.

The next hive, which is my best, being a strong swarm early last year (out of the first hive), was worse than the first, all brood in every stage dead, but perfectly 'sweet'; also plenty of eggs. We then examined a straw skep, which I anticipated would swarm to-day, and found the same disaster. I am thoroughly disappointed, as I have carefully tended each stock through the winter, and up till six days ago all was going on well, and I had hoped to have a good year of honey. Now all my hopes are destroyed, unless you can help me through the difficulty. I have thought of putting the bees into new hives as artificial swarms, and destroying the old combs with the dead grubs in, and so getting a chance of a small honey harvest.

I have taken in your *Journal* for nearly two years, and have generally found good practical advice, which has invariably put me right; but having searched through many back numbers, I cannot find any symptoms like those above described. I take the liberty of trespassing on your kindness to reply per return of post as best you are able, and thereby, if possible, give me a helping hand. In anticipation of your so doing please accept my thanks.—T. E., *Tettenhall, June 11th*, 1881.

[In reply, we could only suggest that the bees had swarmed unobserved, or had been stupified and stolen. Can any of our readers offer a likely suggestion, or throw any light upon so strange a condition of affairs in other respects? We asked that a comb of brood might be sent up for examination, but have heard nothing more of the matter.—Ed.]

OVERSTOCKING.

My bees have been a fearfully losing game; but now that I shall have more time for their management I hope for a different result. I have united all weak stocks, and have over forty that will stand the winter with little feeding. I have them mostly in frame hives, and now is the time for bee-keepers to consult each other as to the future management. It strikes me the thing most difficult in bee management, on a large scale, is to prevent robbing and fighting. I have several ideas on the subject, but I want to hear the opinions of others. Surely a correspondent must be wrong in saying a neighbourhood could take a large quantity of hives. I have made inquiry on this point, and I think fifty hives the *outside* a radius of a mile will feed. I am sure you may overstock a bee-farm as well as a sheep-farm. I *would* have my way this year, and move some hives to the food, and I am so well satisfied that I hope next year to put the swarms in large box frames, having fastened comb in a few bars, and taken them to districts all round, especially to the sainfoin fields, and my neighbours for many miles will assist me. I fancy in large bar-frames there will be no danger of any more swarming or casting the same year. Am I right? The honey is so superb in this neighbourhood. There is no difficulty selling the honey; the mixture of food is so very great. I plant in the woods, shrubberies, and waste places, food for the busy little things. I shall hope to trespass on your future pages, and give the different harvests from them at different periods. Our ivy was more forward than I ever knew it, but was sadly injured by frost. The bees are like swarms in the trees on fine days. I find by far the most valuable food to be borage. It is a very pretty plant, and lasts long; and I find after the seed is gathered the stalks are devoured by all stock, being cut in a chaff machine with a little straw.—T. Beale Browne, *Salperton Park, Cheltenham.*

[Fifty hives is a very low estimate for an acre of over three square miles of land, but everything must depend on its nature. Large hives lessen the probability of swarming, and that is all: the impulse to swarm is natural and does not depend on sizes of their domicile. They will swarm from the open roof of a mansion, or a church belfry, many hundreds of times larger than a hive.—Ed.]

CEYLON FOR BEES.

Can any of our readers give a lady bee-keeper any idea whether the climate of the island of Ceylon be likely to suit our English bees? There seems to be a native small black bee, but it is left in its wild state, and made of no use.

INTRODUCTION; OR, EARLY HISTORY OF BEES AND HONEY.—No. X.

I said the bee was able to speak, and teach proud man, with all his boasted intellect, many a wise saying, if he was only willing to learn at her school; and the wisest man the world ever saw was willing to learn from the bee what all his wisdom could not teach him. I allude of course to King Solomon, as the following story shows:—

When Solomon was reigning in his glory,
Unto his throne the Queen of Sheba came,
(So in the *Ta'mud* you may read the story)
Drawn by the magic of the monarch's fame,
To see the splendours of his court, and bring
Some fitting tribute to the mighty king.

Nor this alone: much had her highness heard,
What flowers of learning graced the royal speech,
What gems of wisdom dropped with every word;
What wholesome lessons he was wont to teach
In pleasing proverbs; and she wished, in sooth,
To know if rumour spoke the simple truth.

Besides, the queen had heard (which piqued her most),
How through the deepest riddles he could spy;
How all the curious arts that woman boasts
Were quite transparent to his piercing eye.
And so the queen had come—a royal guest—
To put the sage's cunning to the test.

And straight she held before the monarch's view,
In either hand, a radiant wreath of flowers;
The one, bedecked with every charming hue,
Was newly culled from Nature's choicest bowers,
The other, no less fair in every part,
Was the product of divinest art.

'Which is the true, and which the false?' she said.
Great Solomon was silent, all amazed.
Each wondering courtier shook his puzzled head,
While at the garlands long the monarch gazed,
As one who sees a miracle,—and fain,
For very rapture ne'er would speak again.

'Which is the true?' once more the woman asked,
Pleased at the fond amazement of the king;
'So wise a head should not be hardly tasked,
Most learned liege, with such a trivial thing.'
But still the sage was silent; it was plain
A deepening doubt perplexed the royal brain.

While thus he pondered, presently he sees,
Hard by the casement—so the story goes—
A little band of busy, bustling bees,
Hunting for honey in a Sharon rose.
The monarch smiled, and raised his royal head;
'Open the window!' that was all he said.

The window opened at the king's command;
Within the room the eager insects flew,
And sought the flowers in Sheba's dexterous hand.
And so the king and all the courtiers knew
That wreath was Nature's; and the baffled queen
Returned to tell the wonders she had seen.

My story teaches (every tale should bear
A fitting moral) that the wise may find
In trifles light as atoms in the air,
Some useful lesson to enrich the mind—
Some truth designed to profit or to please,
As Israel's king learned wisdom from the bees!

If you wish for a pleasant and profitable recreation, I say, with the good Bishop of old, 'Keep bees—keep bees—keep bees.'—WILLIAM CARR, *Newton Heath Apiary, near Manchester.*

BEES' STINGS.

(*From 'Nature.'*)

Can any of your readers inform me why the working honey-bee has such an imperfect weapon of defence, as its sting manifestly is? For purposes of self-defence it is apparently worse than useless, for in nearly every case, almost without exception, the bee lays down its life with the sting. The possession of a sting, therefore, only leads to its own destruction instead of to its preservation so far as the individual bee is concerned. No doubt the hive generally gains an advantage from all its active members having stings, and so indirectly do individual bees from the fact that the welfare of the hive, speaking generally, means the welfare of the individuals that compose it. Directly, however, the possession of a sting can only be a disadvantage to the individual bee unless there are certain enemies from which bees after inflicting a wound can withdraw their stings and escape with life. This so far as my observations go, appears to be very unlikely, and therefore, no bee can have any knowledge from experience of what a weapon of offence he possesses; for he has never used it, nor can he have knowledge from the experience of the consequences of using it. All smaller pests, bees attack with their jaws. Is it possible then that they are so intelligent as to be well aware of the power for mischief to themselves as well as to others, which they carry about with them, and that it is only when they altogether lose control over themselves, either through severe pain or terror lest their queen should be injured that they sign their own death-warrants on our hands and faces?

In the death of a few worker bees a hive suffers very little loss, perhaps none at all. Yet it may have gained much in the shape of security from molestation. Are bees so intelligent as to know this fact and communicate it to one another, or can their conduct be explained on the lower ground of instinct? It seems that an interesting point is here raised which perhaps has been fully discussed elsewhere without my knowledge of it. Is the fact that the sting of the worker bee is an imperfect weapon of defence, a result of its having nothing to do with the propagation of its species, this being left to the stingless (?) queen and drones?

Consequently any tendency to develope a more effective sting in one generation of worker bees, has no hereditary effect on the succeeding generations, nor apparently have the worker bees any influence whatever on the worker bees that succeed them, except by the way in which they feed and educate them, unless indeed they can impress their tendencies on the drones or future queen before she leaves the hive. If they have no such power it seems likely that they will always have to lament the use of a weapon which Nature might have made as effective as the sting of a wasp. Finally, are there any other insects in the same predicament as worker bees, *i.e.* unable to use the weapon of defence without doing themselves more injury than they inflict on their adversary, and unable to help their successors by the transmission of a continually accumulating instinct.—R. A. *Manningtree.*

A GENEROUS BEE-KEEPER.

Christopher Brown, 11; Edward Brown, 13; Edwin Wright, 14; John Baker, 13; and William Daveron, 12, were charged with stealing a quantity of honey-comb, the property of Mr. Frederick Handel Lemare, residing in the Sydney Road, Guildford. The charge against William Daveron was withdrawn, in order to enable him to be called as a witness. The boy said he lived with his parents at Charlotteville. On Sunday, the 15th ult., he was in the company of the other boys. This was between seven and eight o'clock in the evening. They went into Mr. Lemare's garden in Sydney Road,

and took a quantity of honey-comb, with the exception of Edward Brown, who stood in the road to see if anyone was coming. They had each a piece of the comb, and a piece was given to Brown for watching. Mr. Richard Blackall Baker, a gentleman living in the Sydney Road, said on the evening in question he saw the boys coming out of Mr. Lemare's garden. When they saw him they all ran away. They all appeared to have something in their handkerchiefs. Mr. Lemare said that by their interference with the hive his apiarian arrangements had been put back for a year. The Mayor said that the Bench only regretted they could not order the boys to be whipped. They were disinclined to send them to prison, and they would, therefore, be fined 10s. each. Mr. Lemare, the prosecutor, said that he could not allow the parents to be punished for the offences of their children, the more especially as he understood two of them were widows. He would, therefore, pay the fines himself. This statement was received with cheers from a crowded court.—*West Sussex Gazette.*

Bee-stings.—Bees will not sting if the face, hands, &c. are anointed with mallows and oil.—James Bruce.

The Bee's Motto.—Home, sweet home; there's no place like comb.—*Belvoir Gardens.*

Echoes from the Hives.

Wildman and Bees (Baldock).—'In reply to yours, in *Bee Journal*, respecting Wildman, my attention was called to a cutting from, I believe, *Lloyd's Weekly*, about two months ago. It gave a very brief account of some of his wonders with bees. I remember one was, he rode horseback with a hive of bees, and fired off a pistol, and all flew away; also, there was something about him having the bees all over him while he rode: it would be very interesting could it be raked up if there is any truth in it.'—G. S.

Ireland.—'You will be glad to hear I am most successful this year with my bees. Up to this they have done wonders. In the beginning of the season I had only five good stocks, now I have sixteen, all doing well. I made the swarms as you directed, and I have to thank you for all my success. Fancy, one of my swarms at the end of nine days had the hive filled with honey, and plenty of eggs and brood.'—A Lady Bee-keeper.

Croydon.—'The experience of bee-keepers in this neighbourhood does not at all tally with yours—queens dying, bees decamping, and no swarming up to June 2nd; blossoms abundant, *but no nectar*, dry weather being the cause—meanwhile, blossoms falling from trees. Results—stocks very weak in numbers, there being no *grub* in the cupboard. Mother won't lay to increase *grubs* in cells.'—J. D.

Sheffield.—'I think I have now got on the royal road to keep bees successfully and profitably. I thought so long ago, and had indeed made some steps in that direction. Different localities, of course, require different treatment; but here, I am satisfied that to succeed we must have no weak swarms, must feed early for winter, and contract the hive by means of a dummy, and chaff, or other packing, so soon as the outer combs are free from brood. It appears to me that your Standard hive would be more complete if you sent out a dummy with it. I made mine, using one of the frames for the purpose.'—J. J. H.

Cockermouth.—Comb Foundation.—Gloves.—'My bees have not worked up the foundation as rapidly as you give accounts of yours doing. They filled out four frames in six days; at the end of another six days they had got no further,* so I inserted a frame between first and second, and third and fourth, thus keeping the two centre combs containing brood together. I think there could be no risk of chilling, as the weather is very sultry and I narrowed the entrance. I have tried the suggestion of a 'Country Parson' and an 'Amateur' about syrup on the hands instead of gloves, and find it quite successful.'—J. P. C.

Twisted Frames.—'I've received the hives. I like the principle, but cannot congratulate you on the workmanship. The frames *are twisted all ways*, and as they hang in the hives, some are close together at one end, and more than an inch apart at the other.'—A Disappointed One.

[We are obliged to our correspondent for this complaint, for it gives us an opportunity for suggesting that every one on receipt of hives, after they have been subjected to the tender mercies of a Railway Company, should re-arrange the frames by wracking them into true shape. The top bars of our frames have a hanging width of two inches, which is greater than can be found in any others, and they are all made in a true mould; but a journey by rail with the hive on its side will be very likely to distort them. We take all possible precaution; but are not a match for railway porters.—Ed.]

Wrington, May 24th, 1881.—Value of July Swarm.—'I had proof yesterday (May 23rd) that the old saying, "A swarm of bees in July is not worth a fly," is untrue. I had a swarm the 22nd of July, 1880, and yesterday I had a very good swarm from it. I commenced feeding the parent swarm, and continued slow feeding until late in September last year, and I commenced slow feeding again in March last, and I suppose the result is this early swarm. Why do swarms collect such a quantity of pollen the day after swarming, when they can have nowhere to deposit it?'—Geo. Lovell.

[Is it not probable that the bees consume it (pollen being nitrogenous), to repair the waste of fibre and tissue consequent on the exhaustive process of wax-forming?—Ed.]

Bardney, Lincolnshire, May 24th, 1881.—'I have to begin with this year only four hives, but I gave away box hives last year to two shoemakers and one railway porter, who sold their honey last year at the Boston Show (L.B.K.A.) One got a small prize for a glass super. The honey they sent to the show crystallised, so they got no prize, but sold at 1s. per lb. by Mr. Godfrey's kindness. The severe long winter has killed some of their hives; but it was in consequence of not attending to their feeding in the autumn. It is so difficult to get men in their station to lay out a few shillings in sugar. The next show of the Lincolnshire Association is to be held at Louth, at which I hope to attend and assist Mr. Godfrey in his assiduous labours for the benefit of our favourites.'—Rev. W. V. Turner.

Whithorn, May 24th, 1881.—A Touching Remembrancer.—Bees at Whithorn.—'I ought to have written you, letting you know of the death of our friend Mr. L. Martin. It was his desire I should let you know of his decease. He asked me to thank you for your uniform kindness at all times to him. I hope we will have a good season; it has been very backward as yet, but it looks as if it would improve now. Ours did well last year. I had one gave me 92 lbs. of honey besides a good swarm. I got 250 lbs. of honey altogether, and had an

* It would appear from this remark that the bees had an unlimited number of frames of foundation to build on, instead of being restricted to '*as many only as they could cover.*' Had four been 'enclosed' in the first instance, and others added one by one as fast as they were filled, there would have been a larger result. Enclosing the frames and bees preserves the heat, which is an all-important item in comb-building.—Ed.

average of 1*s.* 4*d.* per lb. for it, which was fair for three stocks. I have this year ten stocks, and hope it will be a good season; they are at least ten days later than last year. We shall have no swarms for at least two weeks.'—James M'Ilwrick.

Rottingdean, May 28th, 1881.—'My bees are doing well here; there are hundreds of acres of yellow trefoil out in full blossom less than a mile distant. The ground about here is also very partial to kilk, on the yellow flowers of which the bees work with a merry hum. An old farmer near here had his first swarm on May 12th. By the way they are *not* covered up; it is surprising they swarm at all. Some of his straw skeps have nothing over them, while some others have only an old artificial manure bag laid on top. If bees will winter like that, one would think double walls and chaff-packing are only expensive and unnecessary additions to the modern frame-hive. Last year the owner of said bees started with two old stalls, sold five pounds worth of honey, and brought six safely through this winter; and yet I do not think I ever saw bees worse cared for. The honey sold was from the stock hive, and the bees were destroyed to get it.'—Saml. Simmins.

High Wycombe, June 10th, 1881.—'There are no swarms of bees about here; they do not swarm. I have not had a swarm yet (June 10th), and there are others that have not: they look as though they would swarm, but do not.'—W. Martin.

Horsforth, Leeds, June 10th, 1881.—*The Combination Principle.*—'Can you send me one of your Irish hives at once?' I had one a few weeks ago through Mr. Yates, of Grantham. I drove into it a swarm out of a strong lot that had wintered in a straw skep, and gave them five frames fitted with comb-foundation. In less than a fortnight they had filled the five frames, and had found their way under the dummy which had been carelessly put in to two other frames, and a frame of sections which I had placed in the hive to be ready when wanted, and had filled them also.'—W. D.

Mulbarton, June 11th, 1881.—'The bees appear to have done well as to honey up to the 4th of June. I have taken a small quantity off, and had expected to have had plenty this week, and I hardly think they will do much more at present, as many have died from the cold just when they appeared ready to swarm.'—J. T.

Leamington, June 13th, 1881.—'The foundation is everything I could expect—just splendid! Every prospect of a good season. Took a few splendid sections a week ago for the Birmingham Show; they were gathered from a field of rape.'—John Walton.

Long Ashton, June 13th, 1881.—'I am not used to frame-hives; but I get a lot of honey in supers, with just a hole in top of boxes with glass. I took this morning a super with 32 lbs. of honey from a hive which threw out a swarm about a month ago. We have a large field of sainfoin close at hand.'—J. A.

[This, though a common feature, is valuable evidence in support of our theory that bees store best when they have no brood to attend to. A week after the queen had left there was scarcely an unsealed brood-cell in the hive. We wonder what sized super would have been filled had the queen only been removed, and the swarm left to gather and store honey?—Ed.]

Durie Gardens, Fife, June 15th, 1881.—*Wasps Abundant.*—'Have you ever seen so many wasps as there are this season? I have killed myself in the garden here 579 queens. My bees are in a very thriving state, but are only just ready for supering. I intend following your advice and deprive one of my strongest subjects, so I [illegible] with several bees [illegible]. I think it a very good idea.'—A. M.

N. Devon, June 15th, 1881.—*Flat-two combs with hon*[illegible]—'My bees are doing well; they she could help herself[illegible]rence for the flat-bottomed foundation. Yesterday I gave a hive a frame half filled with flat and half with the old pyramidal foundation; in twelve hours they had worked out the flat-bottomed, and the other piece had only a few cells begun to be formed.'—Wm. Walker, Junr.

Holl House Farm, near Milton, Stoke-upon-Trent, June 23rd, 1881.—'My bees have had a splendid time this spring, everything that could be desired. My first swarm came on the last day of May. One of my stocks are busy filling the American sectional supers you sent me, which are admired by every one who have seen them in this part. I use frame-hives, your pattern, and I like them too. Hoping that I may be the last to wipe off the red pink by handing over my subscription.'—Edward Clowes.

Hereford, June 23rd, 1881.—'There was a good fruit blossom here, and I took a few sections before the clover came out. Then came ten days cold weather: and now again it is warm and showery, and nearly all my stocks are working in sections. I am not extracting this year, as I do not think it works well, unless a 2-story hive is used. I prefer sections; the honey is much nicer. I do not know whether it is the favourable season or better management, but I have a larger proportion of hives working in supers than I ever had before.'—A. W.

Bolton, Lancashire, June 24th. Foul Brood.—'I find all my queen-cells have failed, and although they have been sealed up, and a cocoon made, I find they have decayed and dried up. I also find, say about thirty cells, containing dead brood, in a pasty state; of course, all the living brood is now hatched out. Do you think this is chilled-brood or foul-brood? I shall be much favoured if you can answer this.'—H. S.

[Queen-cells all having proved abortive, and brood in a pasty state, alone remaining in the hive—though there is probably a great deal that dried up—we should treat the case as one of foul-brood, and deal with it accordingly.—Ed.]

Queries and Replies.

Query No. 386.—I shall be glad to be informed whether in fitting up a hive entirely with wood-foundation—the frames having wide sides—it is necessary to cut a hole at the centre or side of the foundation of one or all the frames, to allow the building of drone-comb and the passage of the bees? W. M. B.

Reply to Query No. 386.—Undoubtedly it will be desirable for wintering purposes to make sundry holes through the combs, but during summer our experience has been that bees fill them up at once; nevertheless, being then through the wood they can be easily cleared at the end of the honey season.—Ed.

Query No. 387.—*Charming Bees.*—You say in June number you charmed a swarm of bees. Please explain how it is done.—One that Wants to Know, *Bormoor, Herts.*

Reply to Query No. 387.—Our correspondent evidently has not noticed that the word 'charmed' was between inverted commas. We simply shook the bees into a skep, as often recommended in the *B. B. J.*, and because we were not stung, the bystanders declared that we had 'charmed' them.—Ed.

Query No. 388.—Have humble bees ever been domesticated and put into hives?—K.

Reply to Query No. 388.—Humble bees are incapable of domestication, inasmuch as the worker-bees all die in the autumn, and the queens leave their nest and seek winter quarters for themselves. The nearest approach to domestication of which we are aware was effected by our Junior last year. He 'took' a 'Bumble's' nest, and captured and brought home most of the bees.

The cells were in a bunch like grapes, of all sizes, between a walnut and a red currant. He separated them and arranged them over the bottom of a shallow box, cementing them in their places with wax poured from one of our smelters. A glass top was then put upon them, and the bees introduced to their future progeny, great care being taken of the queen. This bee-nest was set in our garden, and the bees worked in and out, and hatched out the brood; and it was most amusing to see the big, booby-looking bees crawl out of their shells, wet and callow, and mingle with their tiny sisters, as if begging for warmth and attention. The case was exhibited at South Kensington Show, when the public on Bank Holiday worried the poor bees to death, and destroyed the brood that remained.—Ed.

Query No. 389.—*Brood in Super.—Uniting Stocks in Autumn.*—May I ask you in your next *Journal* to answer two questions for me? 1st. What is the best plan of proceeding when a glass super about 28lbs. is full sealed, except that one or two combs have 5 or 6 square inches of worker brood? Would you leave on the super till hatched out or not? (I intend taking it off at present.) 2nd. If you want to unite frame-hives at the end of the season and take surplus honey, would you cut it out of the frames above the brood, and then tie in the brood of two frames in one?—E. D. O., *Bray, June 9th*, 1881.

Reply to Query No. 389.—In this case, had we seen the intimation that it was intended to remove the super we should have sent a line per post; but the replies being asked for in next *Journal*, the letter was pigeon-holed by a clerk who did not know the nature of the questions asked. We should have advised cutting out the brood and putting it (covered) over the feed-hole of another hive to hatch out, and should have replaced the super with long-holed excluder zinc between it and the hive. We do not approve of removing and replacing supers after they have had opportunity for getting cold: the bees sometimes attack them when replaced, and leave them in a very 'unfinished' condition, filling up the hive with their contents. Of course, now that the super *has* been removed, the brood will have died, except such as had arrived at maturity, and it should be cut out to save trouble to the bees.

2. At the end of the season there will not be sufficient brood in a hive to render the process described necessary. All the brood-frames of two hives may easily be put into one, and the honey about the brood taken out by means of the extractor.—Ed.

Query No. 390.—*Too many Drones.—Doubling a New Swarm.* If it is not trespassing too much upon your time, I would thank you much for your advice in reference to a bar-frame hive of bees I have. It has an enormous number of drones. Can I do any harm by putting on a trap? Had I better cut out the drone comb? I have increased the number of bars since it threw the second swarm, which was on the second of this month. My first swarm, on the 25th of May, has filled ten frames (June 12th); and I am about to give them another frame-hive on the top, fitted with flat-bottomed comb-foundation, which I much prefer, if you approve?—C. J. H. F., *Sible Hedingham.*

Reply to Query No. 390.—If there are too many drones, which such successful swarming does not tend to prove, and the excess of drone-comb be cut out, its place should be filled with worker foundation, or drone-comb will again be built. The drones may, of course, be trapped, but not immediately after swarming, or their absence may leave the hive without sufficient heat producers. We shall have something to say on behalf of drones presently.

It can do no harm to apply a super-hive if the swarm is strong enough to work it; but probably the bees will not do much in it until their brood begins hatching and their numbers increase. We have every confidence in the flat-bottomed foundation.—Ed.

Query No. 391.—*Foundation.—Transferring.*—Thanks to your *Journal* I have begun bee-keeping again in good heart, and hope to continue. I had been a bee-keeper about ten years up to the spring of 1880, when they all died, and I decided not to keep any more, until a friend took me into his apiary and showed me his mode of bee-keeping, and lent me your valuable *Journal*, which I was very much delighted to read and study. I bought a stock in November last, and had a splendid swarm on the 31st May last, and put them into a hive with eight frames of foundation, and they have filled all the frames with the exception of a little in the front frame. Would you give them more foundation, or wait until the front comb is completed? The old hive is 'crying' out to-day (June 13th); shall I transfer the contents as soon as the after-swarm comes off?—W. W., *Aislaby.*

Reply to Query No. 391.—These queries, though accompanied by strong commendation of this *Journal*, show how little its teaching is sometimes accepted and applied in individual cases. There appears to be a nervous fear on the part of many readers that the conditions we indicate cannot be theirs, and they must write for their confirmation. We can really give no better directions than we gave in the late numbers of the *Journal*. We would give additional frames of foundation so long as the swarm is able to cover them, one at a time, and when a second swarm comes off would return it to the parent hive at night, and twenty-one days after would make an artificial swarm of the whole of the bees, and put them into the new hive with foundation as suggested in the *Journals* referred to. The old hive will contain lots of honey; but the brood, except the drone brood, will all be hatched out, and the combs can be appropriated at will. We urge that it is safer and cheaper to furnish new foundation, and ensure new, straight, healthy worker-combs than by the utilisation of old ones to incur the trouble and risk of robbing and disease their transfer will entail.—Ed.

Query No. 392.—*Swarms killing off Bees.*—My three old stock-hives are very strong and crowded, though they have thrown off two swarms each. Last week I obtained a swarm from a distance. The bees in this new hive seem to have no time to work; they are occupied all day in killing and dragging out other bees. These unfortunates seem to be small and young bees. Query: Are these small young bees expelled from the crowded old stock-hives and killed in the attempt to obtain a home with the strange bees, or is the new swarm simply destroying its useless weak members? The same thing is being done in the other hives, but not to the same extent. I send you four of the unfortunates which have just been killed.—A Cumberland Parson.

Reply to Query No. 392.—It is apparent that the bees are interlopers; probably belonging to a stray swarm that, having attempted to join one of the hives, has lost its queen and dispersed. The smallness is chiefly owing to absence of food causing them to shrink telescopically. Had they been full of honey they would have probably met with a different reception, on the principle enunciated by the 'Renfrewshire Bee-Keeper:' 'Welcome fren's when ye hae ocht.'—Ed.

Query No. 393.—*Mounting Sections.*—Please tell me how the 4-inch sections are to be [illegible] the 'Irish' hive. There is not room for f[illegible]he back of brood nest, and three do not fill [illegible] and what sized crate ought to be put on [illegible] first instance, ginning with the frame-hives [illegible] they were filled, about the sections. I have got lo[illegible]suit. Enclosing the will be very grateful for advice [illegible]eat, which is an all-*Ireland.* Ed.

Reply to Query No. 393.—One of the simplest ways of putting sections on top of a hive, is to place them in rows between two pieces of thin board of sufficient length and depth; put a piece of glass at each end, and tie tightly together with wire, preferably, and set the rows side by side. Any part of the frames not covered by them must be covered with something else. This last little contingency seems to puzzle the wits of many bee-keepers—they cannot conceive how a small super can be put on a large frame surface without some special and, perhaps, expensive means of adaptation. The second part of the query has been anticipated elsewhere. —Ed.

Query No. 394.—*Cheshire Frames. Freaks of Swarming.*—I started bee-keeping in the autumn of 1879, when a friend gave me a small stock in a ten-frame Cheshire hive. They were on five twin frames. They wintered well, clustering on each half frame the farthest from the entrance, leaving the other half entirely bare, so that, in reality, they was only the area of two and half frames covered with bees. I packed each side of the division-board with chaff, and chaff cushion on top, and flour-cake on tops of frame, so that they were nice and snug, and lost but a trifling few. They got very strong by the summer, but did not swarm, perhaps owing to my giving them plenty of room, as I put them in another hive that I made myself, three feet long, holding twenty frames, which I filled up by degrees with comb-foundation. They wintered last on seven frames, and came out strong in the spring. They sent out a splendid swarm on May 21, which I did not expect, as I had increased them to thirteen frames, but a few minutes after they all came back and settled, some on the ground in front of the hive, some on the stand, and some clustered thickly under the porch above the entrance, and eventually all went in the hive again. How can you account for this?

On the following Monday I made from them an artificial swarm, taking three combs of brood, with two queen-cells sealed attached to one, and one queen-cell open with yellowish something inside, and put empty frames, and changed the hives, which made a very strong swarm. I left the queen with the old hive, as I could not find her. On May 30 the new swarm sent out another, alighted, and came back again in half-an-hour, and went in the hive they came from. I thought the reason these came out was that they were too warm, so I gave more ventilation, and they did not go out again. On the following Saturday I picked up from the front of the said hive a dead, but beautiful queen. I had not time to examine the swarm to see if another queen was there, so left it till Whit-Monday; but the weather being wet, and the rest of the week cold, I did not examine them till Saturday, when I could not find the least trace of a queen, there being neither eggs nor larvæ; but the two queen-cells before mentioned were empty, and the ends looked as if they had been literally torn open, quite jagged, not as they are generally seen after the queen has left them. As I bought two swarms last year, and they are doing well, I took a comb with eggs, and gave them to raise another queen, and am now awaiting results. Can you tell me how it is both queens should be lost? And now a word about the parent stock. I happened to go out in the garden last Saturday, and looking on the ground, espied a large bee crawling about, which at first sight I thought was a drone, not dreaming of seeing a queen there, when, to my surprise, I found it was the queen of the parent hive! I took her up and put her on the alighting-board, and she walked in; but as soon as she got in, she was seized by her subjects, so I got a piece of stick and hooked her out with several bees clinging all around her. I rescued her, and put her in one of your cages, and inserted it between two combs with honey at the top of the combs where she could help herself, and left her there for two days, but when I went to release her, found her dead. How can you account for that? And why did they turn her out of the hive, or did she come out of her own accord? This is her third year, and after examining the combs, I found a lot of eggs recently laid.

If you will kindly give me your thoughts on the above, I shall be much obliged.—J. Symons, *2 Northwold Road, Upper Clapton, June* 15, 1881.

Reply to Query No. 394.—It has been our experience that the Cheshire dividing frames, though a clever mechanical arrangement, are adverse to the well-being of bees because of the double bar of wood down the centre of them, which, in summer, the queen does not care to pass over, and in the winter the bees prefer not to cluster upon. Last year a stock, composed of ten dividing frames, contained brood along the front halves, and honey only in most of the back parts, and only by reversing and interspersing them could we get the queen to breed in them indiscriminately. We are now using them 'Combination' fashion, the half-sized frames across the hive, and they answer fairly well, making a hive similar in size to the Egyptian mud pipe, but square instead of tubular.

The freak (?) of swarming is easily accounted for. The queen fell to the ground, and a part of the bees discovered her, the remainder returning to the hive, where she, with her attendants, joined them. It is difficult to account for the swarm from the newly-made swarm returning after having clustered. The bees forming it would, as a rule, be *led* off by the first hatched young queen, and we can only suppose she was swallowed by a bird when on the wing, and the bees being left leaderless, returned to the hive. It sometimes occurs that when young queens go out for fertilisation, the bees swarm out with them, but this would not be so, as a dead young queen was afterwards found outside the hive, showing that the two other queen-cells had been left intact by the first queen that hatched, which would not have been the case had she not actually led off a swarm. In due course the second queen hatched, and killed her sister, whose body you found outside the hive; and now there is the question whether she (*i.e.*, queen No. 2) is alive in the hive or not. Young queens are 'skittish critturs,' and by no means easy to find. They often take wing immediately a hive is opened, or hide themselves 'anywhere,'* and not finding them by no means proves their non-existence. But the question will soon be solved, for if dead, new queen-cells will be raised on the comb of brood last given to the bees. The old queen having proved incapable of swarming, had probably been worried and turned out of the hive, as is usual when bees have *determined* to swarm.—Ed.

Query No. 395.—*Swarms Deserting their Hives.*—Please tell me whether the following is common among bees. A very heavy swarm was hived at midday; remained in straw skep one hour and a half; came out—flew direct to a hollow elm-tree, from which they cannot be taken out. Another in a different locality did the same, after remaining six hours in the hive. This cannot be accounted for by the queen dropping on the ground. Had the bees made up their mind to go to the tree, and would nothing have stopped them?—H. S.

Reply to Query No. 395.—There may be several reasons assigned for the conduct of the bees, either of which would be sufficient to account for it. They may have been allowed to hang too long on the branch, or the hive left too near it, or the hive may have been too small, or an old one not smelling quite sweet, or it may not have been shaded or sufficiently ventilated and became too hot—under either of which conditions the scouts sent out would bring back welcome intelligence,

* We have repeatedly found them, after much searching, hid away in ordinary cells, no part being visible but the tip of the 'tail.'—Ed.

and the bees would depart for more comfortable quarters, more comfortable at least for the time being. We have had plenty of evidence that bees often select a new home beforehand, but they almost invariably cluster (apparently) to be sure of the queen being with them before migrating, and if while clustered they be suddenly hived, and their new quarters are agreeable, they almost as invariably stay, and lay themselves out for comb-building.—Ed.

Query No. 396.—*Ligurianising.*—I am sorry to give you so much trouble; but as I would much rather act on your advice than any other—as I 'bought' plenty of experience, *very dear*, too—I want you to tell me if I did right in acting as follows:—The bees of one of my boxes had been 'hanging out' for some days, so I took the two frames of Ligurian eggs, and placed them with four frames of foundation in an empty hive. I then placed the hive containing the bees that were waiting to swarm on a new stand, and put the hive containing the Ligurian brood, &c., on their stand. Upon opening this hive forty-eight hours after, I found that the bees had commenced four queen-cells on the bottom of one of the combs, but the other they were filling in with honey, and so destroying the eggs. Is this usual? I must here state that I find Abbott's flat-bottomed foundation all that can be desired. I merely fasten them to the top bar, and stick two needles on each side near the bottom to keep them steady, and the bees work them out 'grand.' Are the eggs or larvæ the best for the bees to raise queens from—which do they generally prefer? Up to what age is it possible for the bees to raise queens from—I mean the eggs or larvæ? I have another box which is ready to swarm; would you serve them as I did the other, and give them a queen-cell two days after? If you will kindly give a short answer to the above I should feel greatly indebted to you.—W. R.

Reply to Query No. 396.—The object being to raise Ligurian queens, and as we happen to know your Ligurian swarm had only been very lately received, the plan adopted was a good one, giving very little trouble: but it would have been better to have shaken a large number of young bees in front of the hive containing the Ligurian eggs, and left the old ones that had been '*hanging out*' to work in a super in their own hive. Under these circumstances there would have been more queen-cells raised, and none of the eggs would have been sacrificed. We have many times repeated that old bees are not good nurses, honey-gathering being their forte, if it can be had, and there is room to store it; and we have known them to sacrifice their brood to make room for it—at least we could find no other reason for their doing so. For raising queens, both eggs and young larvæ should be given, that full opportunity for continuous queen-raising may extend over several days, and yet permit of its early accomplishment; there is, apparently, no rule of preference. They can raise queens from seven to eight days from the eggs being laid. Some Syrian queen-cells of late took eighteen days to hatch; but these bees appear to have the principle of life so strongly developed that probably they could raise queens from brood ready for sealing up. The second hive may be artificially swarmed in the usual way, and a Ligurian cell given to the queenless lot twenty-four hours after the swarm has been made.—Ed.

Query No. 397.—By your kind advice I drove all the bees from an old straw skep, and put them into a Combination with seven frames of foundation, and am surprised and delighted with the result. In seven days they built out all the combs, and were storing honey. I have given them more frames, and think they are progressing favourably. After the operation I put the beeless skep in the place of a wooden box-hive, moving the latter (which I ought to mention is not a very strong stock) to a new stand. All seems going on well, but I want you to indulge me again, and advise the next step to be taken. I have another Combination and a Woodbury-sized hive at liberty. I have one other stock which is working sectional supers, and is doing well. I don't care to multiply my stocks, and would rather have quality than quantity.

Helping Cottagers.—I make very little progress in converting the believers in the sulphur match, as they will not see the advisability of spending money on new hives. The next best thing, I suppose, is to induce them to use means to make their stocks as strong as possible, and to use cheap supers. Now this idea has just occurred to me, and I ask you kindly to write *yes* or *no* at the foot and return to me. Suppose a cottager has *two* hives. He determines to take one. Would it be beneficial if I drove it for him, and united the driven bees with the other stock? It seems to me that this would give him a very strong stock, which he might super early with some chances of success, and thereby give him a taste to advance.—J. H. V., *Manea.*

Reply to Query No. 397.—It would have been better to have put the beeless skep on the top of the 'not very strong stock,' and thereby have helped it, strength, and not numbers being the object, and then to have proceeded as indicated in June *Journal*. As things are, twenty-one days after swarming the skep will contain no brood, and the presence of a queen being ascertained, the bees may all be driven out and treated as in the first instance, the honey and combs in the skep being appropriated, and when the box-hive becomes strong enough, it may be similarly dealt with.

2. It is dangerous, in a sense, to meddle with cottagers' bees that are intended to stand through the winter, for should anything go wrong, blame will be attributed to the interference. It would be far better to purchase the spare bees of a cottager, and build them into a stock, thus letting him see the value of what he intended to destroy, that he may be wiser in future. The bees of two condemned stocks, united and put into, say, six frames of foundation, would soon be fit to winter, but we would urge that this be done before the queen has ceased breeding, that there may be a succession of young bees. The proposed plan of adding condemned bees to other stocks is a good one, and if the cottager would (or could) take care of his bees, all would be well. Many poor cottagers are '*rated*' severely because they will not, in autumn, spend a few shillings in sugar for their bees; but, unfortunately, with winter staring them in the face, poor cottagers are generally unable to afford to do so.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

'Hereford Times.'—Some one has kindly sent us this immense paper of sixteen large, closely-printed pages, but omitted to mark the part to which attention was (probably) intended to be directed, and we cannot discern aught of interest in bee-keeping. We should be exceedingly glad if those forwarding papers would always mark the paragraphs they wish to be noted, as searching for such entails great loss of time.

T. A. C., *Dublin.* Putting the frame-hive with swarm on a ladder with no floor-board intervening was almost inviting the bees to build on the bottom rails of the frames, and it is not surprising that they also built to the rounds of the ladder. The disturbance consequent on removal, cutting the comb from the ladder and tying it into the frames, was probably the cause of the bees swarming out again. The hive should have been put on its permanent stand immediately the bees had settled in it; there was no necessity for its gradual removal—the swarming hum would have been sufficiently attractive to prevent the loss of stragglers.

Postmark—'Kfield, B. *May* 30.—Some one has kindly sent postage stamps with a request, but forgot to give either name or address; and the partly obliterated postmark is the only clue we have. We hope we are not being too severely scolded for not replying.—Ed.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 100. Vol. IX.] AUGUST, 1881. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

The summer of the present year will long be memorable in the annals of English apiculture. For five months the weather has been almost all that the most ardent bee-keeper could desire, and the honey yield has been simply enormous. Under ordinary circumstances the harvest would have been a large one, but with improved ends and appliances it has thus far been immense, and many tons have been garnered. In our own apiary, with very moderate surroundings, honey has accumulated in a most extraordinary way. Robbed continually of their bees to form swarms for the public, the hives have attained great weight, and the extractor has done ample service, yet honey continually flowed in. Small nuclei with only a handful of bees in them, to hatch out queens, have filled and been extracted repeatedly: and swarms and casts too small to send out have produced treble their value in honey and paid over and over again the cost of the comb-foundation with which they have been invariably supplied. With full sheets nearly touching the sides and bottom of the frames, the bees had nothing to do but fetch in honey by day and work out the cells by night, and in many instances so quickly have the cells been filled with nectar that the poor queens have been unable to find occupation.

Our flat-bottomed foundation, notwithstanding the prejudice roused against it, has been an unmitigated success, it having been worked out and filled with honey in quite a phenomenal way, sheet after sheet being filled with virgin honey in the centre of the brood nest, and in several instances, to our great astonishment, in the very front of the hive. Sealed combs of pure virgin honey at (across) the entrance are against the theory that 'bees always store at the farthest point from it,' but the evidence of a correspondent, whose bees filled an empty comb he had accidentally left lying outside, tends to show that during a honey glut the bees will store it anywhere. During the early part of the season the bees in hives with frames across, worked with great precision. With honey coming in moderately they worked out their combs admirably, and with beautiful regularity filled whole sheets with worker brood delightful to look at. The first comb at the entrance received the honey by day, and was removed at night, favouring the Pettigrew theory of 're-swallowing it,' which, as a matter of course, they were obliged to do to remove it. In some cases, the front side only of the entrance-combs had honey in them, the back being filled with brood, but when the glut came there was no occasion to remove the queen for the prevention of brood-raising, for the bees filled the cells as fast as they were vacated by hatching bees, and effectually curtailed the queen's power of egg-laying, and new frames of foundation received honey deposits ere the cells were an eighth of an inch in depth. With all deference to those who prefer that bees should be supplied with foundation having cell bases of natural shape,—and it is reasonable to believe such to be most agreeable to the bees; and in view of the charge of 'self-interest,' to which we are liable in writing so strongly in favour of a material we produce,—we deem it our duty to give our readers the benefit of experience, fully borne out by others' testimony, and thus we leave the subject; there are no patents, and nothing to prevent others making, using, or selling the material in question. Wooden-based foundation, though highly praised in its early days, has received a blow. The machine has been worked at such high-pressure rate, that the cog-wheels have worn, and when set as far apart as the thickness of the wood necessitates, they work unevenly, and the foundation is imperfectly turned out. We have ceased to make it for the present, and have exchanged, and are willing to exchange, for all-wax foundation any sheets that have not been or are not satisfactory.

Notwithstanding the glorious weather here,

in Scotland and Ireland there is not the same ground for satisfaction, reports of rain (in Ireland almost daily) and coldness being rife: but it is hoped (bee-keepers always hope) that the heat-wave may visit them in time to produce a harvest yet.

The show season has come round, and we have little doubt but that there will be a succession of grand honey exhibits, rendering famous the comet year 1881.

USEFUL HINTS.

Combs in Skeps damaged.—It often happens that amateurs, in driving, subject the combs to such hard usage, or they may be so damaged in transit, that the hive cannot be replaced on its floor-board without danger of the combs falling; and the unfortunate tyro, seeing no remedy but 'transferring,' with all its difficulties, the heavy, heated combs of honey and brood to a frame-hive, not unfrequently makes the matter worse by attempting that operation. In such cases we find it best (as a rule) to interfere as little as possible with full, heavy, damaged combs, but prefer to replace them as nearly as possible, put the floor-board on the top, and leave them upside down for a day or two, until the bees have cleared up the bleeding honey and fixed the comb anew.

In doing this we get a few old wine-corks, and with both hands gently lift the leaning combs to a perpendicular position, and slip a cork lengthways in each interval between them, and these are usually sufficient to keep them from falling (leaning) again. The hive should then be carefully shaded, and in two or three days may be safely restored to its normal position.

If there be overmuch loose honey, it is well to set the inverted hive over a pail, that it may drain out through the zinc over the feed-hole; and if the hive have not that requisite, a hole should be cut, a piece of strainer-canvas tied over the pail, and the hive-crown made to bed comfortably upon it. The canvas will then answer the double purpose of a strainer for the loose honey, and as a means of keeping enemies and vermin out of the pail.

Removing Supers.—This, one of the hoped-for pleasures of bee-keeping, often causes trouble, through the difficulty in getting bees to leave the honey; but where sectional supers are used, they should be removed in a body to a short distance from the hive, and a cloth (quilt) thrown over the frames to prevent incitement to robbing. The sections should then be taken singly to the hive, and the bees brushed off them with a bunch of grass, or other non-fibrous material. The sections should then be taken within doors, or placed in racks that the bees cannot enter. A little smoke blown between super and hive will simplify matters greatly.

Large Supers should be taken off (after smoking) and carried about for a time inverted, during which a continual tapping on the sides will cause the bees to 'boil' over, and they may be brushed off to find their way home at leisure. Those who prefer not to carry the bees about should place the super on a board with an entrance-way cut into it, and put a tube of perforated zinc a foot long into the entrance-way, when if the super be made dark the bees will leave by means of the tube, and will never think of returning by its projecting end. Intending robbers will try to get in at the entrance proper.

Wasps will now begin to be annoying, and their nest should be found and destroyed. Pour or syringe some turpentine into their entrance-way, and in ten minutes they may be dug out without harm. The fumes of the turpentine will kill the guards, and there is no danger from the wasps returning home. Narrowing the entrances of hives will enable the bees to guard them better, and wasps will not venture into a guarded hive; they are simply sneaking thieves, and never openly attack.

Queen Introduction.—We wish we could instil caution into the minds of bee-keepers in dealing with stocks they find queenless and broodless, and impress them with a correct idea of the difficulty of uniting queens to bees in such condition. We have many times warned our readers that old bees lose the instinct or the power (which is much the same thing) that conduces to increase of population, their duty and purpose being the collection of stores and the defence of their homes. They will not willingly accept an imposed queen, raise queen-cells, or feed larvæ, yet when found to be queenless their owners too often purchase expensive queens to unite with them—not ten per cent of which are safely introduced or do well for the reasons given.

What to do with Stocks found Queenless.—As natural heat only is necessary to the evolution of queens from sealed cells, old bees will answer the purpose as well as others, but it must not be expected that they will breed very fast when the young queens commence laying.

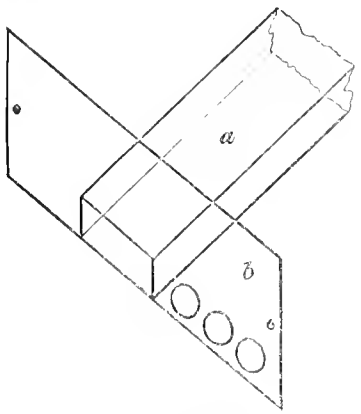
Old bees being useful as heat producers, honey gatherers, and warrior guards, they may be utilised to hatch out combs of brood, the young bees from which will raise queen-cells, and eventually the hive will be repopulated. We have found this to be the best way of utilising old bees—we give them the brood combs from another hive in exchange for the empty

ones of their own. With skeps this is done by driving from both, and when they are empty of bees putting the full-combed hive in place of the other, and *vice versâ*; and it almost invariably succeeds if there are any drones about, to secure fertilisation of the young queen that will be raised.

PREVENTING ROBBING.

When the fine weather breaks up, and the honey income ceases, the bees that have been gathering largely, having nothing else to do, will get into mischief, and unless precaution be taken robbing will soon be rife in the apiary. Prevention is better than cure, and in this particular too much pains cannot be taken to guard against its beginning, for once begun it is most difficult to suppress. To be helpful in both directions we have devised a trap that will be found useful, and any tinker can make it; it may not *always* be effective, but being right in principle it is worthy of trial.

It consists of a tube of perforated zinc, *a*, fixed to a plate of similar zinc furnished with one or two holes of the round hole excluder size, *b*, the tube pointing outwards at an angle



of 45° or thereabouts. Now if a stock be comparatively weak, and this be placed at the entrance there will be no difficulty in bees getting out of the hive, but they will only be likely to get in through the one or two holes in the plate *b*, which will be ample in circumstances when it is recommended to leave only room for two bees to pass.

If robbing is going on, and the trap be applied the thieves inside can escape, but others will only be able to get in through the holes *b*, and as in doing so they will be in a defenceless position, the bees within the hive will be able to 'wring their heads off' before they can get their wings, bodies, or hind-legs through the aperture. The tube *a* permits the besieged to march out and attack the besiegers in the rear, while the latter intent on the hive entrance are trying to force a way through the narrow pass *b*. The trap is an adaptation from Mr. Tenny Braddy's zinc tube, which has been uniformly successful as a means of clearing supers. It has been awarded a Bronze Medal at the South Kensington Show.

HIGHLY TRAINED BEES.

In early spring we received a sample of 'pure' wax from a Liverpool firm, but when made into foundation the bees amused themselves by nibbling it to dust and wasting it. We thereupon declined 'the article' as impure, basing our objection on the evidence afforded by the bees themselves.

This elicited a reply from the New York exporter, with a copy of which we were favoured. He says, 'Your correspondent takes good ground when he bases his decision on the "instinct of bees." That the wax is absolutely pure I guarantee, but perhaps the bees referred to have been cultivated to such a high point that *nothing* short of comb of their *own* making will satisfy them."

[Rather an ingenious theory, that.—Ed.]

PARALYSIS IN BEES.

We have heard of several cases of what appears to be paralysis of the wings of bees, which threatens to decimate the hives to which they belong, hundreds lying about the apiary, rendering it impossible to walk about without treading some to death. There is no dysentery or abdominal distension, and the bees take food when offered, but cannot fly. There is no appearance such as one would expect from poisoned food, nor is there any deficiency of food in the hives. The bees come out to take their flight, and fall to the ground, and are unable to rise again. It appears to be worst in the morning after a previous day's confinement at home through wet or cold weather. Can any one throw any light upon the cause of the malady?

THE WARWICKSHIRE COUNTY ASSOCIATION TENT.

Warwickshire is setting a good example to other counties in respect of Bee-tent accommodation, having one for home use, which is doing good service and doubly stimulating local bee-keepers, and at the same time setting free the tent of the 'British' for pioneer service in other directions. It has been engaged at Hampton-in-Arden July 23, and Hagley and Halesowen July 26; is due at Dudley Castle on 1st and 2nd August, Eastnor Park August 11, and at Rugby, the County Show, September 6 and 7.

The Association makes good progress, and

the County Show is already an almost assured success, thanks to the energy of the Hon. Sec., J. N. Bower, Esq., of Knowle.

AUTHORSHIP OF 'MODERN BEE-KEEPING.'

As this question is public matter yet to be discussed, we refrain from observation; but a letter having appeared in the *Journal of Horticulture* of June 30 imputing motives to us which never existed, we felt it would be but right to ask the Editors of that journal to let its readers know what had induced the remarks in question; and the following letter, with a copy of the 'editorial' which will be found in the June number of this journal, was addressed to them:—

'THE AUTHORSHIP OF "MODERN BEE-KEEPING."

'To the Editors of *Journal of Horticulture*.

'Gentlemen,

'I have observed in your issue of June 30 some remarks by Mr. Cheshire on an Editorial which appeared in the *British Bee Journal* for June on the above subject, and that your readers may have an opportunity of judging for themselves of the nature of the Editorial I respectfully beg that you will in justice to me (the writer) give it publicity. I will only remark that Mr. Hunter being dead cannot defend himself against attack or misrepresentation, but others who feel aggrieved and on whose behalf I wrote will doubtless take measures to protect themselves against the imputation of jealousy and selfishness conveyed in Mr. Cheshire's letter. On my own behalf I prefer the silence which is golden.

'Your obliged Servant,

'C. N. Abbott.

'*Fairlawn, Southall, Middlesex,*
'*July 4th*, 1881.'

To this the following, in 'Notices to Correspondents,' was the only reply accorded:—

'*Modern Bee-keeping* (C. N. A.).—As you state that you "prefer the silence which is golden," and as you do not state the names of any individuals who feel themselves aggrieved, we fail to see that the publication of your letter would serve any useful purpose. We perceive that you do not question the accuracy of the statement in the article to which you refer.'

And there the matter rests so far as the readers of the *Journal of Horticulture* only are concerned—they have read Mr. Cheshire's remarks written in what he considers 'the strength of gentleness,' and they have seen the way in which my letter and the 'Editorial,' written in 'the strength of honesty,' have been treated, but they are unaware of the nature of either.

C. N. Abbott.

The Baltic Provinces Central Association for Rearing Bees is to hold an exhibition of these insects in the second week of September at Potsdam, under the special patronage of the Crown Prince, who has expressed a wish to be present. It is expected that the number of exhibits will be unusually large, since the associations include upward of 200 members.—*Daily News.*

THE BRITISH BEE-KEEPERS' ASSOCIATION'S GREAT ANNUAL SHOW AT SOUTH KENSINGTON.

This annual event, looked forward to with great interest by bee-keepers of all classes, came off with great *éclat* at the Royal Horticultural Society's Gardens, South Kensington, lasting from July 26 to August 1st inclusive.

It has been our good fortune to be present at many shows, but never anywhere in the United Kingdom has there hitherto been such a grand exhibition of honey as has been delighting the eyes of London at this fashionable place of resort during the past week.

Mr. T. Thorne, of Baldock, staged no less than 540 lbs. of comb-honey, and was closely pressed by Mr. J. Walton, of Weston, near Leamington, with 431 lbs., in addition to which Mr. Walton staged over a hundredweight of extracted honey, and sent a large quantity to the Honey Fair, showing what an intelligent cottager can do.

There were 61 exhibitors and 274 exhibits, two of which, Messrs. Neighbour and Sons and Mr. Baldwin, who were awarded a silver and bronze medal respectively, included scores of hives, supers, extractors, and other requisites, and were a show in themselves worthy much higher acknowledgment than the awards they obtained. It was worth five silvers and twenty bronzes to bring them there.

For Ligurian bees Messrs. Baldwin and Neighbour obtained first and second prizes respectively.—For foreign bees Messrs. Neighbour, the only exhibitor (Carniolians), received a silver medal.—For Observatory hives, Messrs. Baldwin, Hollands, and Scott, took silver, and bronze, and certificate.—For best hive, Messrs. Griffin, Abbott, and Hooker, were awarded silver, bronze, and certificate.—For best substantial hive, Messrs. Abbott, Green and Sons, and Lee, took similar prizes in the order of their names.—For economical hive for cottagers, Mr. A. Cockburn, of Cairnie, took first with a marvel of cheapness; and if he were compelled to supply them at the price named, 10s. painted, as exhibited, we do not envy him his position. Mr. R. McGregor, of Aberdeen, was second, and Messrs. Green and Sons, of Rainham, third, all three being equally commendable.—For the best hive made by an amateur or cottager, Mr. Howitt was first, Rev. A. Roberts second, and Rev. W. E. Burkitt third, taking silver and bronze medals, and certificate in rotation.—For the best skep, Mr. W. Martin took bronze medal with a neat flat-topped skep and set of ten sections on top and adapting-board complete, price 5s.

For supers, cheapest, neatest, and best, complete, Messrs. Abbott were first with their catalogued crate of sections, Messrs. Neighbour second, and Mr. Lee third.

The honey classes were too numerous for immediate report, and gave the judges an immense amount of labour.

A 'bit of sleight of hand' was performed on a set of sections exhibited by Mr. Hooker, of Seven Oaks, in Class 16. He had staged twelve 'perfect' sections

of 1 lb. each, yet the judges found among them one highly imperfect one, which lowered his standard, yet immediately after the judging the whole were perfect again.—Moral, every exhibit of sections should be marked, each section in such exhibit having a corresponding figure, monogram, or motto upon it. It may have been an accident, but if it were not, the substitution of sections under the circumstances was a shameful piece of rascality.

For comb-foundation, Messrs. Abbott and Raitt divided honours, receiving a bronze medal each.

For the best means of making (on the spot) comb-foundation Messrs. Abbott were first; and the public, and many bee-keepers too, were astonished at the celerity with which foundation can be made with plaster-casts when one knows how to do it. Plaster-casts will henceforth be much in demand if the expressions of approval uttered bear the usual significance.

For honey-extractors, Mr. Cowan was first and second, and Mr. Abbott was third.

For bees-wax, Messrs. Abbott, Hooker, Hunt, and Scott were in order.

For honey-jars, Messrs. Hooker, 72*s.* and 18*s.* per gross, Abbott 20*s.* and 16*s.* 6*d.* (inclusive of 1*s.* 3*d.* per gross for covers by post), as usual at Birmingham, and Hollands, were in rotation, the latter's price being 50*s.* and 33*s.* respectively for two and one-pound jars.

Mr. Godfrey, of Grantham, was awarded a silver medal for a grand collection of dried bee-flora displayed on cards, well worthy of special classification, and binding as a volume.

For best crates, Mr. Cowan was first in both classes.

For new inventions, Messrs. Abbott received two bronze medals, one for an expeditious method of fixing comb-foundation in supers, the other for the robber trap described on page 65. There were several other inventions worthy of notice, if not of a prize, but they appear to have been overlooked for the time being.

The end of the month being so near, we had little time for more than a brief notice of the exhibits, but on the whole we can safely say that no better exhibition has ever taken place; the arrangements were perfect.

We were extremely glad to see the esteemed Hon. Sec. of the Association, the Rev. H. R. Peel, again to the front after his long and severe illness. His presence puts new life into the work, and we but echo the general hope that he may long be as able as he is generously willing to continue the good work to which he has so heartily put his hand.

Another long absent one, the Hon. and Rev. H. Bligh, gave pleasure by his genial presence, and was most heartily welcomed by every one who knew him. He was the first to subscribe to the formation of the Association, and took the chair at its first formation, and the present condition of affairs gave him immense satisfaction. Altogether, the show was a wonderful success, and will be highly stimulative in effort.

On Tuesday, at 5 p.m., Mr. Cheshire delivered an entertaining and instructive lecture on 'Bees as Florists' Hybridizers and Fruit Producers, illustrated by new and original Diagrams,' to a large and appreciative audience, and was loudly applauded. The subject is one of very great interest, and deserves far more attention than is generally accorded to it.

On Wednesday, at 5 p.m., the General Meeting of the members of the Association was held. The Baroness Burdett-Coutts, President, in the chair.

On Thursday afternoon the prizes were distributed by the President of the Bee-keepers' Association, the Baroness Burdett-Coutts, the Princess Christian, who was to have performed that ceremony, being precluded from attending by the death of a near relative of the Queen. Her ladyship was supported on the occasion by Mr. T. W. Cowan, Chairman of the Committee, the Honorary Secretary, the Rev. H. R. Peel, and several other leading members of the Association.

The Honorary Secretary gave an interesting account of the recent proceedings of the Association, which met with a hearty reception from those assembled.

After presenting the prizes, the Baroness Burdett-Coutts congratulated the Association on the increased importance attained by the Association through the practical extension of its teaching influence to almost all parts of the kingdom, especially dwelling on the fact that cottage bee-keepers are now entering into competition with persons belonging to higher stations in society, the useful instruction which they have received in the most important elements of bee-keeping having placed them on a level with persons of larger means. The Baroness also expressed her gratification at the result of the Society's having sent a deputation to Ireland to instruct the people in the rural districts in the improved methods of management.

One of the judges, the Rev. F. T. Scott, spoke of the merits of the exhibits of cottagers as illustrating the useful influence of the Association.

Mention was also made of the fact that the Committee are endeavouring to get the Post-office authorities to imitate the practice of the American Post Office of forwarding queen-bees in a manner which ensures perfect security against injury, so that the Ligurian bee, with all its well-known merits, may be widely propagated.

The following is the list of awards:—

Bees.—Class 1—For the best stock of Ligurian Bees: 1st, G. Neighbour and Son, silver medal; 2nd, S. J. Baldwin, bronze medal. Class 2—For the best stock of Cyprian or any other Foreign Bees: 1st, G. Neighbour and Son, silver medal.

Hives.—Class 3—For the best Hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with Bees and their Queen: 1st, S. J. Baldwin; 2nd, W. Hollands, bronze medal; 3rd, R. Scott, certificate. Class 4—For the best Moveable Comb Hive: 1st, W. N. Griffin, silver medal; 2nd, C. N. Abbott, bronze medal; 3rd, J. M. Hooker, certificate; A. Blake, highly commended; C. N. Abbott, commended. Class 5—For the best Frame Hive of a substantial character for general use in an apiary. Price not to exceed 15*s.*: 1st, C. N. Abbott, silver medal; 2nd, Green and Sons, bronze medal; 3rd, J. Lee, certificate. Class 6—For the most economical Hive, on the moveable comb principle, for Cottagers' use. Price not to exceed 10*s.* 6*d.*: 1st, A. Cockburn, silver medal; 2nd, R. McGregor, bronze medal; 3rd, Green and Sons, certificate. Class 7—For the best Frame Hive for general use—the work of an amateur or cottager: 1st, N. Howitt, silver medal; 2nd, Rev. A. Roberts, bronze medal; 3rd, Rev. W. E. Burkitt, certificate. Class 8—For the best Straw Hive for depriving purposes, cost to be taken into consideration. Price not to exceed 5*s.*: 1st, W. Martin, bronze medal.

Supers.—Class 9—For the cheapest, neatest, and best Supers for harvesting honey in the comb in a saleable form: 1st, C. N. Abbott, silver medal: 2nd, G. Neighbour and Son, bronze medal; 3rd, J. Lee, certificate: A. Blake and Rev. G. Raynor, highly commended.

Honey.—Class 10—For the best exhibition of Super Honey from one apiary: 1st, S. Thorne, 40*s.*; 2nd, J. Walton, 20*s.*; 3rd, J. M. Hooker, 10*s.* Class 11—For the best Super of Honey, not being sectional supers. The super to be of wood, straw, or of wood in combination with glass or straw: 1st, J. K. Filbee, 20*s.*; 2nd, W. Sells, 15*s.*; 3rd, Rev. F. T. Scott, 12*s.* 6*d.*; 4th, Mrs. P. R. Spencer, 7*s.* 6*d.*; 5th, W. Martin, 5*s.* Class 12—For the best Glass Super of Honey: 1st, W. Martin, 20*s.*; 2nd, W. Sells, 15*s.*; 3rd, Mrs. P. R. Spencer, 12*s.* 6*d.*; 4th, J. H. Austin, 7*s.* 6*d.*; 5th, R. Scott, 5*s.* Class 13—For the best twenty-four 2 lb. sections of Comb Honey: 1st, J. Walton, 30*s.*; 2nd, Miss Gayton, 20*s.*; 3rd, S. Thorne, 15*s.*; 4th, S. Thorne, 10*s.*; 5th, J. K. Filbee, 5*s.* Class 14—For the best twenty-four 1 lb. sections of Comb Honey: 1st, J. M. Hooker, 25*s.*; 2nd, Rev. G. M. Raynor, 20*s.*; 3rd, W. H. Dunman, 15*s.*; 4th, J. Walton, 10*s.*; 5th, S. Thorne, 5*s.* Class 15—For the best twelve 2 lb. sections of Comb Honey: 1st, J. Walton, 20*s.*; 2nd, C. N. Abbott, 10*s.*; 3rd, T. W. Cowan, 5*s.* Class 16—For the best twelve 1 lb. sections of Comb Honey: 1st, T. W. Cowan, 20*s.*; 2nd, J. Walton, 10*s.*; 3rd, J. M. Hooker, 5*s.* Class 17—For the best exhibition of Run or Extracted Honey in twenty-four 2 lb. glass jars: 1st, R. Scott, 20*s.*; 2nd, J. Walton, 12*s.* 6*d.*; 3rd, C. N. Abbott, 7*s.* 6*d.*; 4th, Rev. W. E. Burkitt, 5*s.* Class 18—For the best exhibition of Run or Extracted Honey in twenty-four 1 lb. glass jars: 1st, Rev. W. S. Walford, 20*s.*; 2nd, Miss Gayton, 12*s.* 6*d.*; 3rd, J. M. Hooker, 7*s.* 6*d.*; 4th, C. N. Abbott, 5*s.*

Comb Foundation.—Class 19—For the best sample of Comb Foundation made of pure Bees' Wax, to consist of 2½ lbs. thick (worker cells) for stock hive, and 2½ lbs. thin for supers: C. N. Abbott, bronze medal for thin foundation; W. Raitt, bronze medal for thick foundation. Class 20—For the best, cheapest, and simplest appliance for making Comb Foundation, to be shown at work in the presence of the Judges: 1st, C. N. Abbott, silver medal.

Cottagers' Classes (no entrance fee).—Class 21—For the best Super of Honey not being a sectional super: 1st, W. Woodley, 20*s.*; 2nd, L. Harris, 15*s.*; 3rd, W. Martin, 10*s.*; 4th, T. Sells, 5*s.* Class 22—For the best twelve 2 lb. sections of Comb Honey: 1st, J. Walton, 20*s.*; 2nd, J. Walton, 15*s.*; 3rd, L. Harris, 10*s.*; 4th, W. Woodley, 5*s.* Class 23—For the best twelve 1 lb. sections of Comb Honey: J. Walton, 20*s.*; 2nd, W. Martin, 15*s.*; 3rd, T. Sells, 10*s.*; 4th, M. Wood, 5*s.* Class 24—For the best exhibition of Run or Extracted Honey in twelve 2 lb. glass jars: 1st, M. Wood, 20*s.*; 2nd, W. Hunt, 12*s.* 6*d.*; 3rd, W. Martin, 7*s.* 6*d.* Class 25—For the best exhibition of Run or Extracted Honey in twelve 1 lb. glass jars: 1st, M. Wood, 15*s.*; 2nd, J. Walton, 12*s.* 6*d.*; 3rd, G. Holley, 7*s.* 6*d.*

Foreign and Colonial Classes.—Class 26—For the largest and best exhibit of Honey in the Comb, either in sectional or other supers, the total weight of each entry to be not less than 24 lbs.: 2nd prize, Lucio Paglia, 20*s.* Class 27—No entry.

Comestibles.—Class 28—For the best Mead or Metheglin made from Honey, with recipe attached: 1st, C. N. Abbott, bronze medal; 2nd, R. Scott, certificate.

Miscellaneous.—Class 29—For the best and largest collection of Hives and Bee-furniture, most applicable to 'Modern Bee-keeping,' no two articles to be alike: 1st, G. Neighbour and Son, silver medal; 2nd, S. J. Baldwin, bronze medal. Class 30—For the best Honey Extractor: 1st, T. W. Cowan, silver medal; 2nd, T. W. Cowan, bronze medal; 3rd, C. N. Abbott, certificate. Class 31—For the finest sample of pure Bees' Wax, not less than 6 lbs. in weight, obtained from Combs made by the exhibitor's own Bees: 1st, C. N. Abbott, 10*s.*; 2nd, T. Sells, 7*s.* 6*d.*; 3rd, W. Hunt, 5*s.*; 4th, R. Scott, 2*s.* 6*d.* Class 32—For the best and cheapest pair of Honey jars, with covers and fastenings complete, to contain 1 lb. and 2 lbs. each of Extracted Honey: 1st, J. M. Hooker, 10*s.*; 2nd, C. N. Abbott, 7*s.* 6*d.*; 3rd, W. Hollands, 5*s.* Class 33—For the best Crate for the safe conveyance of Comb Honey in sections, by rail or otherwise: T. W. Cowan, bronze medal. Class 34—For the best Crate for the safe conveyance of Extracted Honey in glass jars, by rail or otherwise: T. W. Cowan, Bronze medal. Class 35—For any Invention calculated in the opinion of the Judges to advance the Culture of Bees: C. N. Abbott, two bronze medals. Class 36—For the best Microscopic Slides (not previously exhibited) illustrating the Natural History of the Honey Bee: F. Enock, silver medal. Class 37—For the best and largest display of British Bee Flora in a dried state or otherwise, R. R. Godfrey, silver medal.

Driving Competition.—Class 41—For the competitor who shall in the neatest, quickest, and most complete manner, drive out the Bees from a Straw Skep, capture and exhibit the queen: 1st, J. Walton, 20*s.*; 2nd, W. Martin, 10*s.*; 3rd, J. K. Filbee, 5*s.*

JUDGES' REPORTS.

Classes 1–9.

The Judges of these Classes notice with much pleasure the great advancement made in the exhibits, the closeness of the competition in most instances rendering it no light task to award the prizes.

Classes 1, 2, and 3.—The Judges would suggest that money prizes should be added in these classes, the great sacrifice and expense in sending stocks of bees to exhibitions appear to demand them. No one who witnesses the interest these classes create would wish to see them diminished. They would note that in Observatory Hives there was not anything particularly new.

Class 4.—In this class—in which were ten entries, and those in duplicate—the large variety, the closeness of merit and the wide range of prices rendered the duties of the Judges no easy task. They do not attach any great importance to the necessity of exhibiting a duplicate hive, as the winter arrangements they consider may be shown without this.

Class 5.—Here, too, was a splendid lot of exhibits, and many of great merit, though in some too much complication, at the cost of good practical arrangement, was apparent.

Class 6.—In this class there were eleven entries, many well worthy of notice. In some they would still like to see less of the fanciful and more of the useful, and a good hive for a cottager at 6*s.* each.

Class 7.—This class well deserves special mention, including as it does exhibits that the Judges consider will hold a place with those of any manufacturer. They think it desirable that an additional class should be added for amateurs who would produce hives suitable for cottagers, say at 7*s.* 6*d.* each.

Class 8.—In this class there was only one exhibit. The arrangement of the super was clever, but the hive too loosely made.

Class 9.—In this class—in which were thirteen entries, all more or less of merit—the competition was exceedingly close, and the Judges regretted they were not allowed to award more prizes.

R. R. Godfrey.
Thos. F. Ward.
Wm. N. Griffin.

Classes 10–20.

The Judges are pleased to be able to report that in consequence of a favourable season, and the diffusion of more correct knowledge of the best methods of bee-culture, a larger and on the whole a better collection of

honey has been exhibited than has been the case since the Association has been established.

The 1-lb. and 2-lb. sections deserve especial notice as being the most convenient method of storing honey, preference being given to the smaller size.

The run or extracted honey in the opinion of the judges was generally of a very superior quality, and testifies to the favourable character of the present season.

The Judges recommend that in future no names or marks of ownership should appear on any of the exhibits.

N. Bostock.
Benj. Harding.

Classes 21–28.

The Cottagers' Classes of the present Exhibition furnish, in the opinion of the Judges, most satisfactory proof of the great benefit derived from the British Bee-keepers' Association, for not only are the entries more numerous than on any former occasion, but the form in which they are made seems to indicate that Cottagers are fast giving up their old notions and cruel practices of bee-keeping, and availing themselves, to a great extent, of many of the modern improvements in apiarian science. Most of the comb-honey was exhibited in sectional supers, and in some classes the entries were so numerous and so good that the Judges had the greatest difficulty in determining their comparative excellences and awarding the prizes.

The run-honey was also of superior quality, and might be said to present the same difficulty. It is matter of regret that there was no competition in the Foreign and Colonial Class No. 26, and the fact of their being only two entries in the Class of Comestibles No. 28 may be thought to indicate, on the part of the British bee-keepers, an inclination to favour the Temperance movement by giving up the manufacture of such alcoholic drinks as mead or metheglin.

F. T. Scott.
F. R. Jackson.

Classes 29–39.

Class 29.—There were two exhibitors in this class, each showing great evidence of merit and of full ability to supply all requirements of improved bee-culture. The exhibit, No. 229, of Mr. S. J. Baldwin contained sixty-one different articles; and No. 230, exhibited by Messrs. Neighbour, 134 different articles. There were, in both collections, hives and accessories of all sorts to suit all varying requirements and lengths of purse. In collection 229 was shown the Peet cage, lately so favourite a one in America, both for sending queen-bees and attendants by mail (being well supplied with candy) and for introducing purposes. In collection No. 230 was shown the machine for making foundation by means of two impressed rollers; and there was also shown an improved wax-smelter, having a good lid and large opening to the wax-chamber—a great improvement in a small but most useful article. The smelter would bear making in a larger size for apiaries containing many stocks. The first prize of silver medal was awarded to collection No. 230, and the second, bronze medal, to collection No. 229.

Class 30.—There were six exhibits in this class, the first prize of silver medal being awarded to Mr. Cowan's 'Improved Automatic' extractor, No. 234, which contains all the improvements Mr. Cowan has made since his 'Automatic' took first prize last year. These improvements are specially three:—first, the safety of the sleeve, and as a coupling-piece of the main spindle, from loss, by the simple addition of a slot on the sleeve and a pin on the upper and shorter portion of the spindle, which permits of the sleeve sliding up and down, but prevents its coming off altogether. The second improvement is a considerable one. As shown last year, the near side to the operator of the cages containing the frames of honeycomb opened at the top, working on a hinge at the bottom for the insertion of the frames, but it was a matter of some little nicety to get the frames snugly in under the top bar of the cage. In the improved machine both sides of the cage incline towards the operator in turning up the bent wire pin that secures them, and thus the frame can be slipped in as easily as if there were no top bar at all, and yet by means of simple curved slots and pins at the edges of the cage, both sides are replaced correctly in position by one motion as easily as the one side was before. Third, by fixing the pinions in the box at the bottom in such a manner that they do not leave their position, the cages can be removed for cleaning, and can be replaced in a few seconds with a certainty of coming in their right places.

The second prize, bronze medal, was awarded to No. 233, Mr. Cowan's 'Rapid Extractor,' also a most useful machine, reversing the combs without taking them from their cages.

The third prize, 'Certificate,' was awarded to No. 231, Messrs. Abbott's well-known 'Little Wonder.'

Class 31.—There were seven exhibits of bees-wax, and much of it was excellent. The first prize, 10*s.*, was awarded to No. 238, the second, 7*s.* 6*d.*, to No. 244, the third, 5*s.*, to No. 240, and the fourth, 2*s.* 6*d.*, to No. 242.

Class 32.—For the best and cheapest pair of honey-jars, with covers and fastenings complete, to contain 1 lb. and 2lbs. each of extracted honey. There were four entries: the first prize, 10*s.*, was awarded to No. 248, priced at 72*s.* and 48*s.* per gross for 2 lb. and 1 lb. jars respectively; and the second prize of 7*s.* 6*d.* to No. 246, priced at 20*s.* and 16*s.* 6*d.*; and the third prize of 5*s.* to No. 247, priced at 50*s.* and 33*s.*

Class 33.—There were here four exhibits: one of them was a comparatively small crate hung by centre points at each end midway in a large one, so as to maintain to some extent a constantly level position. Besides this, there were three others, all much alike to one another in principle; one being calculated for a double tier of sections had a piece of glass reaching from the bottom board to the top, and had end-handles of wood attached. The other two differed very little from one another, except that one was for larger sections than the other; and both being for one tier only, the glass was much narrower, and was let into a rebate in the side pieces, and perhaps was less liable to break up. The handles were formed by taking carved pieces out of the thickness of the two end-pieces of the crate. The Judges felt that all had merits of their own, and specially so with regard to the two systems of handles, a most necessary adjunct to any crate for the conveyance by rail of honey, whether in comb or jars. There was only one prize, a bronze medal, to be awarded in this class, and this they gave to No. 250, the one for the double tier and *attached* handles.

Class 34.—There was again one prize, a bronze medal, to be given in this class. There were five exhibits, and the medal was awarded to No. 256. A crate, very similar to 250 in the last class, but for *one* tier of bottles, and no glass at sides and over the lids of the bottles, and attached to the under side of the lid of the crate were two lengths of india-rubber tubing, which, upon the lid being screwed down into its place, made an excellent cushion, and kept them perfectly steady in all directions.

Class 35.—For any invention calculated in the opinion of the Judges to advance the culture of bees. There were here eleven exhibits, among others an excellent model of the mode in which any tent can easily be arranged at country shows for bee manipulations, and as, indeed, it was arranged during its tour in Ireland. There were also shown a cylinder for ripening extracted honey, feeders of different pattern, &c.; but the Judges awarded a bronze medal to exhibit No. 262 containing a dummy board with spring side pieces so as to fit closely in either a square hive or one with slanting sides, a means of stopping robbing, and a 'Bee-keeper's Forget-me-not,' being a

printed table showing in a ready manner the dates at which all matters connected with the welfare of the hive took place; they also awarded a bronze medal to exhibit No. 269, a very ingenious, yet simple method of adapting a watertight covering to glass jars brought forward by Messrs. Abbott Bros. by having the rim dipped in bees-wax made slightly more adhesive by the addition of a little resin, and merely pressing on the top of the bottle when full a piece of paper previously dipped in bees-wax; this, first rubbed round with a knife-handle, and then trimmed with a sharp knife, and protected by having a piece of paper tied over it, made a most excellent and water-and-honey-tight covering. Messrs. Abbott Bros. also in this class showed a little roller for quickly putting in guides to sections by simple pressure, which appeared to answer most thoroughly.

Class 36.—For the best microscopic slides (not previously exhibited) illustrating the natural history of the honey bee. One prize, a silver medal, to be awarded. There was only one exhibit, but the Judges had great pleasure in awarding it to Mr. J. Enock for his very beautiful series of slides, which were most carefully prepared. There were a number mounted flat showing the different parts of the bee, some showing the difference between the same organs of the worker and drone bees, being for this purpose arranged on one slide side by side for easy comparison; and there was one slide in particular containing over sixty pieces, so arranged, which showed the difference of all the principal organs common to the queen, worker, and drone bee. Besides these slides mounted flat there were a number mounted in deep cells showing the organs of the bee in their natural positions, and sections showing the internal organs all in place; these mounted in deep cells are particularly interesting to all those who have not had the chance of studying minutely with the microscope the wondrous structure of the bee.

Class 37.—There was only one exhibit competing for the prize for dried British bee flora; but it was a very nice collection, and was awarded the silver medal.

Class 38.—The prize, a bronze medal, was withheld in this class, in which there was only one exhibit.

WILLIAM CARR.
J. LAWSON SISSON.
CHARLES E. FLETCHER.

DRIVING COMPETITION.

The Judges, in making their Report on the Driving Competition, have to report this display is in increasing favour, judging by the great crowds of people that flock to the manipulating tent at each exhibition, as they learn in a few minutes, by seeing the operations, more than they can do from books in a month.

The first prize of 20*s.* was very cleverly earned by Mr. J. Walton, who captured the queen in 2 minutes, 20 seconds, and completed the driving in 4 minutes, 25 seconds. The second prize was awarded to Mr. W. Martin, and the third to Mr. J. K. Filbee.

WILLIAM CARR.
F. T. SCOTT.
J. LAWSON SISSON.

BRITISH BEE-KEEPERS' ASSOCIATION.

Monthly Committee Meeting, held at 105 Jermyn Street, on Monday, July 11. Present: Mr. T. W. Cowan (in the chair), J. M. Hooker, D. Stewart, C. N. Abbott, F. Cheshire, and the Assistant Secretary.

The Minutes of the last Meeting were read, confirmed, and signed. The several arrangements for the forthcoming show at South Kensington were discussed and resolved upon. A letter was read from the Secretary of the British Dairy Farmers' Association, stating that the Council of the British Dairy Farmers' Association would be glad to make arrangements for an exhibition of bees, hives, and honey in connexion with the annual Dairy Show to be held at the Agricultural Hall, Islington, on September 15 and following days. Resolved, that an exhibition of bees, hives, and honey be held in accordance with the letter received from the Secretary of the British Dairy Farmers' Association. The Assistant Secretary reported that the first edition of the Association's pamphlet, *Wintering Bees*, was now out of print. The Chairman having kindly promised to revise and enlarge the work, it was resolved that a second edition of the work be prepared as early as possible.

BATH AND WEST OF ENGLAND AND SOUTHERN COUNTIES ASSOCIATION.

TUNBRIDGE WELLS SHOW.

In consequence of a misunderstanding, no report upon the bee department at the Tunbridge Wells Show of the Bath and West of England and Southern Counties Association was sent to you. It is perhaps too late to remedy the omission, as the facts and circumstances in connexion therewith have lost much of their force, and their recital would fall flat upon the ears of readers. I will therefore content myself by very briefly reviewing a few of the chief incidents in connexion with it. The negotiations for the holding of an Apiarian Exhibition with the Bath and West of England Society were initiated by the West Kent Bee-keepers' Association; but eventually were carried on and concluded by the British Bee-keepers' Association, the result being that the two Associations worked together in perfect harmony, and reaped the satisfaction of witnessing a very successful exhibition. The ultimate aim and object of the improvements which have been made in bee-culture being the production of honey, it is very gratifying to state that although the date of the Show was a very early one (commencing on the 6th of June), yet some most excellent exhibits of this season's produce competed for the prizes offered, Mr. G. Allen, of Orpington, taking first honours with sections of supers; Mr. F. Cheshire and Mr. R. Scott, and others, also being prize-winners. For Observatory hives Messrs. Freeman, Scott, and Neighbour and Sons, respectively competed, and were awarded prizes in the order named. For the best moveable-comb hive the prizes were awarded—1st, Mr. J. M. Hooker, for his Alexandra hive; 2nd, to Mr. S. J. Baldwin, for a twin hive; 3rd, to Messrs. Neighbour and Sons, for the Philadelphia hive.

In the classes for hives limited in price, Messrs. Blake, Green and Sons, Baldwin, and Neighbour and Sons, competed, the former three obtaining prizes.

Messrs. Baldwin and Messrs. Neighbour and Sons exhibited in the Miscellaneous class. For the best and largest collection of hives and appliances the former gained the award of first prize.

The new rectangular bee-tent of the West Kent Association, constructed by Mr. Huckle, of King's Langley, was used for the bee manipulations, and was regarded as a great improvement over the hexagon-shaped tents generally in use. The weather, unfortunately, was very unsettled during the whole of the Show, but on the more favourable days immense numbers visited the Exhibition, and witnessed with evident interest the manipulations of bees by Mr. Baldwin.

Messrs. T. W. Cowan, J. M. Hooker, and the Rev. G. Raynor performed the office of judging, and greatly assisted in promoting success by their attendance and explanations throughout the week.

It is due to the Hon. and Rev. J. T. Boscawen, the indefatigable steward of the Horticultural Department, to state that except for the continuous energy and resolution shown by him in pressing the importance of the science of apiculture upon the Council of the Bath and West of England Society, no exhibition would have

been held; and he has now the satisfaction of knowing that the efforts made by him will probably result in the permanent establishment of a bee-keepers' department in the show-yards of the Society.

I fear you will consider that I have not quite carried out the intention expressed at the commencement of my letter of being brief in my observations: in this I hope you will kindly excuse me.—JESSE GARRATT, *Hon. Sec., West Kent Bee-keepers' Association.*

ANNUAL SHOW OF THE WEST KENT BEE-KEEPERS' ASSOCIATION.

The third Annual Exhibition of the West Kent Bee-keepers' Association was held on Saturday, July 16th, at Camden Park, Chislehurst, in conjunction with the West Kent Horticultural Society's Show. The interest shown last year in the manipulations in the Bee-tent by the large number of visitors induced the executive to select the same locality for this year's annual Show. The committee of the Horticultural Society cordially and readily assented to the application made to them for the holding of a joint exhibition, and liberally granted tickets of admission to the Flower Show to all members of the Bee-keepers' Association. On this occasion the committee felt it necessary to provide an independent tent for the display of honey, hives and appliances, and the result fully justified their anticipations, the whole available staging being occupied. Of the quality of the comb honey in sections of supers as well as the extracted honey, it may be said as a whole that it was unsurpassable, the weight considerably exceeding a quarter of a ton.

Mr. George Allen of Sunside, Orpington, maintained his reputation of a most successful bee-keeper, although only an amateur practising the art in his leisure time; it may be incidentally stated that his production of honey up to the date of the show averaged 70 lbs. per hive. He was thus enabled to secure the chief prizes in the classes in which he competed, including the silver medal of the British Bee-keepers' Association. The competition in the hive classes was limited, but the specimens were very good. Mr. Hooker's adaptation of the Stewarton system of the nadir or eke to his Alexandra hive was deemed especially deserving of notice, it being rendered thereby a most complete and comprehensive hive, of symmetrical and handsome appearance, and thoroughly suitable for summer or winter service. Mr. Baldwin exhibited a large and varied collection of hives and other apiarian objects; and as a curiosity he exhibited a small sample of milk-white honey collected by bees at Lydd in Romney Marsh, owned by Mr. Masters.

The new Bee-tent of the Association, which is much more commodious and of more pleasing proportions than those generally in use, was used on this occasion; and nearly three hundred visitors paid for admission to witness the manipulations conducted by Mr. Baldwin, and to gather the information freely given with reference to bee management. The general result of the show was fully satisfactory, as conclusive evidence was shown that the objects for which the Association labours are in process of rapid attainment. On this, as on all similar previous occasions, an accession of new members took place; the increase since the publication of the last annual report being nearly forty.

Messrs. J. M. Hooker and D. Stewart kindly undertook the onerous duty of making the awards, excepting of course those classes in which a personal interest precluded them from so doing. The prize list is as follows, viz.:—

Class 1—For the best stock of English Bees in Observatory Hive: 1st, R. Scott; 2nd, S. J. Baldwin; 3rd, no exhibit. Class 2—Best stock of Ligurian Bees: 1st, S. J. Baldwin. Class 3—Best stock of Honey Bees of any description: 1st, S. J. Baldwin. Class 4—Best Moveable Comb Hive: 1st, J. M. Hooker; 2nd, S. J. Baldwin; 3rd, A. Blake. Class 5—Best Hive not exceeding cost of 10s.: 1st, A. Blake; 2nd, S. J. Baldwin. Class 6—Best Hive, the work of an amateur: 1st, Mr. J. Tough. Class 7—Largest harvest of Honey in comb from one stock of Bees: 1st prize, silver medal, G. Allen. Class 8—Largest and best Super of Honey, not wholly glass: 1st, G. Allen; 2nd, T. Heath. Class 9—Best Glass Super of Honey: 1st, R. Scott; 2nd, T. Heath; 3rd, E. C. Youens, Class 10—Best exhibition of Honey in Sections, not exceeding 3 lbs. each: 1st, G. Allen; 2nd, J. Garratt; 3rd, J. M. Hooker. Class 11 Largest and best exhibition of Super Honey in Comb: 1st, G. Allen; 2nd, R. Scott. Class 12—Extracted or Run Honey: 1st, G. Allen; 2nd, R. Scott; 3rd, J. Garratt; H. C. A. Kinder. Class 13—Cottagers' Class—Run or Extracted Honey: 1st, E. C. Youens. Class 14—Cottagers' Class—Honey in Comb: no exhibits. Class 15—Hives and Bee Furniture, &c.: 1st, S. J. Baldwin.

The committee will doubtless feel encouraged to continue their efforts to firmly establish the Association as a permanent institution, but the time must inevitably arise when the question of providing adequate and suitable means for carrying on and extending its work must be decided upon, as the agency now is tentative and voluntary. Liberal support is earnestly asked for. The Honorary Secretary is Mr. J. Garratt, Hockenden, St. Mary Cray.

SALOP BEE-KEEPERS' ASSOCIATION.

The Hon. Secretary of the above Association being ordered abroad, all applications respecting the next Annual Show, on August 17 and 18, must be made to the Rev. A. Corbet, Adderley Rectory, Market Drayton, who has kindly undertaken his office *pro tem.*

WEST OF ENGLAND APIARIAN SOCIETY.

We are glad to know that this Association is still well to the fore, and will hold a grand exhibition of bees, hives, and honey at the Grove, Weston-super-Mare, in conjunction with the annual flower show, on Tuesday, the 9th inst. Prizes are offered that equal in most instances those scheduled by Associations with greater pretensions; and in the interest of bee-keepers we are glad to see prizes for hives and apparatus will only be awarded on the understanding that articles similar in every respect shall be supplied by the exhibitor at the prices named during the year ensuing. Awarding prizes without such proviso is to our mind a farce, and conducive to what is known as 'pot-hunting.' The Hon. Sec. is Mr. Arthur Perrett, Queen's Villa, Neve Road, Weston-super-Mare.

CALEDONIAN APIARIAN SOCIETY.

This Association commenced its great annual show at Stirling, in conjunction with the Highland and Agricultural Society of Scotland, on the 26th ult. The weather was most unpropitious, 'awful auspices' of rain, lightning, and thunder prevailing, but nevertheless the proceedings created great and satisfactory interest. This Association has its head-quarters at Glasgow, under the able directorship of R. J. Bennett, Esq. of Gordon Street, who has kindly promised a full report for our next impression.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.

The second Annual County Show and Exhibition of bees, hives, honey, and bee-keeping appliances, with manipulations with live bees, will be held in Kidwell's Park, Maidenhead, on Thursday, August 18th, 1881, in conjunction with the Maidenhead Horticultural Society. 17*l.*, a silver medal, a bronze medal, and a certificate,

will be given in prizes for the best observatory hives, sectional and other supers of honey, run honey, hives, &c. Practical lectures will be given in the tent at each manipulation, commencing at one o'clock. Schedules of prizes may be obtained by application to the Secretaries, W. S. Darby, St. Stephen's Villas, Windsor, and G. P. Cartland, Victoria Street, Windsor.

DORSETSHIRE ASSOCIATION.

The Association will hold its first Exhibition at Sherborne on the 31st inst., and at Corfe Castle on the 8th of September. The Hon. Sec. is Mr. W. H. Dunman, Troytown, Dorset, who will be glad to give particulars.

THE FIRST INTERNATIONAL BEE-CONGRESS.

Would you kindly oblige me once more by making known, through an early number of the *British Bee Journal*, that the Central Bee Association of Italy have decided to hold an International Bee-Congress at Milan before the closing of the present great National Exhibition. The Congress will be held on Thursday, Friday, and Saturday, the 15th, 16th, and 17th of September next, and a Diploma, commemorative of this great event, will be distributed to every bee-keeper attending it. I will not ask you to spare me so much of your valuable space as to print the programme, but I shall be happy to supply a translation thereof to any one applying for the same.—JOHN CAMASCHELLA, 10 *Derby Villas, Forest Hill, S.E.*

SHOWS AND BEE TENT ENGAGEMENTS IN 1881.

BRITISH BEE-KEEPERS' ASSOCIATION.

August 17 & 18.—Shropshire Bee-Keepers' Association's Annual Show at Shrewsbury.

August 18.—Berks and Bucks B.K.A. at Maidenhead.

August 25.—Horticultural Show at Wantage.

August 26.—Sandy Horticultural Show.

August 30.—Horticultural Show at Long Buckby.

August 31.—Horticultural Show at Horsham.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

August 11 & 12.—Exhibition at the Torquay Aquarium and Winter Gardens. Hon. Secs.: Wm. N. Griffin, Esq., Alphington, Exeter; and Rev. J. G. Dangar, M.A., The Training College, Exeter.

ESSEX BEE-KEEPERS' ASSOCIATION.

Sept. 7.—At Colchester.

Sept. 15.—At Brentwood; also an Exhibition of Hives, &c., and Honey Fair.

Sept. 23.—At Great Dunmow.

HERTFORDSHIRE ASSOCIATION.

August 1.—Hitchin Temperance Fête.

August 2.—Frogmore Cottage Garden Show.

August 10 & 11.—Hertfordshire Bee-keepers' Association's Annual Show at St. Albans.

August 17.—Rickmansworth Cottage Garden Show.

August 24.—Much Hadham Garden Show.

Sept. 8.—Horticultural Show at Harpenden.

WEST KENT ASSOCIATION.

August 3. Yalding Cottage Gardeners' Society Show.

August 4.—St. Mary Cray, Cottagers' Horticultural Show.

August 10.—Frant Cottagers' Association.

A LANCASHIRE COTTAGER IN A DIFFICULTY.

A cottager engaged at a public institution is compelled to give up his bees. He has long been one of our subscribers and asks us to help him dispose of his four frame hives, well stocked, heavy and healthy, and for 5*l.* will sacrifice them, and include gloves, bee-veil, drone-trap, leaflets, *Journal*, *Cook's Manual*, smoker, and two copper smokers without bellows. Will any one near Bury take them?

LECTURE AT ARMAGH, IRELAND.—The Rev. H. W. Lett, of Ardmore, Hon. Sec. of the County Armagh Bee-Keepers' Association, delivered an exceedingly interesting lecture on 'Bees and Hives,' in the Mechanics' Institute, on Wednesday evening, June 28th. James Malcolm, Esq., J.P., presided. The lecture was illustrated by enlarged and coloured microscopic views of bee anatomy, and stress was laid on the advantages of moveable comb hives as compared with skeps, and several specimens were exhibited. The value of the extractor as an aid to honey-getting was dwelt upon, and Mr. Greer, the Hon. Sec. of the Association, showed its working in a practical way. At the close of the lecture, which had been listened to with deep interest, the visitors were treated to a microscopical exhibition of the bee and its anatomy.

BEE-KEEPING AT HEANTON SATCHVILLE.—On Saturday, July 9, through the kind instrumentality of Lord Clinton, a lecture on Bee-keeping was delivered to the cottagers and others in Huish and the neighbourhood, under the auspices of the Devon and Exeter Bee-Keepers' Association, by the Rev. J. G. Dangar, M.A., one of the hon. secs. of the Association. A large party assembled in the afternoon on the lower lawn at Heanton Satchville, in front of the mansion, and numerous diagrams, illustrative of bee life, were displayed on the terrace in view of the audience. The lecturer, in concluding, showed a section of comb honey, beautifully sealed, and in reply to Lord Clinton, he stated that a dépôt for the sale of honey was opened in Exeter every year, of which due notice was given, and that there was never the least difficulty in disposing of any amount of honey. His lordship stated that he proposed to have a large number of bar-frame hives manufactured for his cottagers, and they might repay the cost as they were enabled to do, after the sale of their honey.

[Three cheers for Lord Clinton!—ED.]

Review.

BRITISH BEE-KEEPER'S GUIDE-BOOK TO THE MANAGEMENT OF BEES IN MOVEABLE COMB HIVES, AND THE USE OF THE EXTRACTOR. Illustrated. By Thos. William Cowan, F.G.S., F.R.M.S. (Houlston and Sons.)—This eminently practical and useful work, written solely in the interest of amateur bee-keepers, will take a place in the front rank of British bee literature, and will retain it, too, deservedly. Mr. Cowan and his readers may be congratulated on the appearance of a volume which bears on every page the direct impress of a master mind in bee culture, uncontaminated by the egotism which too often prompts to the publication of narrow views and 'one-eyed' catalogues of goods for sale. Free from technicalities, and 'phine phlights of phancy,' which pall upon the taste and sicken the understanding, every line in the book may be read with pleasure and profit, and re-read with increased interest. We have only good words for a good book by a thoroughly practical and liberal author; it is easily written and well illustrated, and will be for all bee-keepers a reliable guide and agreeable companion.—ED. *B. B. J.*

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

QUEEN INSERTION UNDER DIFFICULTIES.

I send you the following particulars of my working with a hive, as, perhaps, they might interest you, being the mode of operation adopted by an amateur, and the only person, I may say, in this district keeping bees on the improved principle.

Having for some time thought of trying the Ligurians; on a very fine hive swarming I wrote to a man asking his advice as to the best mode of introduction, and the best time, &c. He answered, saying it would be best to introduce her at once, and cage her on a cell containing royal larvæ, if possible, and that if I ordered by return—which I did—he would send me a queen at once: this was on May 30th. As the hive had swarmed some three or four days before ordering, I thought it would be best to remove the older of the royal cells, of which there were four, so as to avoid a second swarm, or trouble of catching the queen. But what was my surprise on looking at the comb which contained the older cells to find that a queen had hatched out, and that all the other royal cells had been ripped open! I searched for the queen, and after some little difficulty got her, as the hive was very full of bees, and she was very lively. As I thought I would have the Ligurian in a day or so, I removed the young queen, and put her in a hive with a small quantity of her subjects. In two days' time having neither received the queen nor an answer, I thought it would be best to return the queen to the hive, keeping her caged, so as to be still in readiness should I get the Ligurian. I wrote to the man from whom I expected the queen, and at last had to telegraph before I got an answer, and was then told that the queen had been disposed of, but that he expected some in about a week.

I was now rather in a fix, as the queen was very likely caught the day she left the cell, and I was therefore afraid to set her at liberty, fearing she had not been fertilised. As, of course, all the brood left in the hive was sealed, I now considered the best thing to do would be to give them a frame of eggs and larvæ, so that they might raise some queen-cells. And now what seems rather strange, and the reason I am principally writing you this account, is that they raised two queen-cells, although their queen was in the hive. When I gave them the frame of eggs, I was taking away the cage and queen, but not caring very much whether they raised queen-cells or no. I let the cage and queen remain by way of experiment; besides, I was daily expecting the Ligurian. They evidently concluded that the queen would always remain caged up, and was therefore useless to them, and hence the raised two queen-cells.

I must say I think I was treated rather unfairly by the man from whom I was getting the queen, as he left my letter at first unanswered, and I knew not what date I might expect the queen. She at last turned up on the 23rd, and again it was awkward. I calculated that the queen-cells would have to go two or three more days, and that I had therefore got the Ligurian in time to cage on one of the cells. But from being raised from the larvæ, and not from the eggs I had given, when I proceeded to cage the queen, one had hatched, and the other queen was destroyed. It was, therefore, a case of again searching for a young queen, which I fortunately found on the second frame I took up.

I had now to wait till Friday to put in the queen, when I caged her on the vacated royal cell. I released her on Sunday evening, and had great doubts as to my success, as it was the first Ligurian I had ever had, and the hive had been unfairly managed on account of the doubt I was left in as to receiving the queen. I managed to curb my curiosity till to-day, when I looked over the hive. The second frame I looked at I was over-joyed to see eggs, and therefore knew she was all right; and the third one I took up I discovered her majesty. She had become so large I could hardly believe it to be the same I caged; she was then hardly distinguishable from one of her subjects. The frames were, for the most part, full of honey unsealed, so I used the extractor, that there may be plenty of room for laying. I am releasing the queen you sent me to-night, and trust I may have the same success.—Francis Jones, *Mullinabro, Waterford.*

WORKER BEES IN QUEEN-CELLS.

On cutting out some queen-cells to-day, I found upon opening one of them, two small bees dead, with their heads away from one another, tail to tail. They are not formed like queens in outward appearance. Thinking they would be interesting to you, I enclose the cell with the bees as found.—C. Feilding, *Shrewsbury, July* 11.

WINTERING BEES IN A HALF-INCH SWARM-BOX.

I wish you would tell me if it would be possible to drive a hive of Ligurian bees out of the box in which you sent them last year into the Woodbury hive. The box is only a packing-case for the swarm. I have never been able to induce them to leave it. They wintered well in it, and have this year thrown off four early swarms, showing that the box is too small I suppose. I don't know what to do with them.—*Pembroke, S. Wales, July* 15, 1881.

[Here is another link in the chain of evidence in favour of hives that do not permit waste of heat round the ends of the combs; or, as we would prefer to put it, in favour of the principle of close *v.* open-ended frames. The swarm-box is of board about half-an-inch thick, about fourteen inches square, and nine inches deep, yet it stood the past terrible winter, and threw off four early swarms.

Would coddling in chaff cushions and cork-dust walls have enabled them to do more? Or supposing their hive had been on the Giotto principle of closed frame-ends, would they have done less? We say nothing against warm hives for winter; but warmth of wall is of little use when draught is permitted to circulate all round inside them. How often do we strain out the gnat and swallow the camel!—Ed.]

CURE FOR BEE STINGS.

It seems strange to me that people are always seeking for some new remedy, or buying 'lotion,' to cure the sting of the bee, when years ago I wrote recommending a remedy 'at once simple, cheap, and effectual,' and one that is generally near at hand too, and that is, good vinegar. (See p. 146, vol. vi., *B. B. J.*: and p. 208, vol. xiii., *Journal of Horticulture*, 1867.) Perhaps it is too simple or too cheap. Our friend, Mr. Woodbury, was rather disposed to throw 'cold water' upon it in 1867; but I venture to say now, as I said then, that 'if your readers will try it they will need no other remedy.' It is also so easy to carry about with you, as a small bottle with a spoonful of vinegar in it will last the whole season—that is, unless you are going in for stings by wholesale; but my experience is, that if you only go about the work quietly and without jarring, you will not receive many of these painful reminders.—J. R. J.

DISEASE OR ROBBERY?

In your last *Journal* you asked your readers to offer a suggestion on this matter. In this part of the country, in the first week in June, there was a severe frost, causing bees in strongest hives to cluster in centre of brood-nest, leaving outside frames of brood to perish of cold. No doubt this frost extended to Tettenhall, and T. E.'s bees having swarmed, or most likely been driven out unknown to him, the frost had its own way with the weak stocks and chilled all the brood. We have not had two fine days consecutively since May.—A. T., *Rostrevor, Ireland, July* 11.

COMB-FOUNDATION FOR SWARMS.

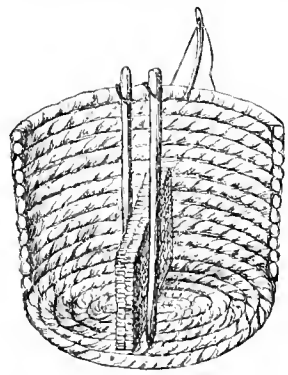
With reference to Editor's Notice as to Comb-foundation in page 47, although really too much cannot be said (on the whole, and when properly used) in its favour, yet my experience tells me that it is not safe to fit up a hive exclusively with it when a swarm is to be introduced thereto; sagging then is likely to happen. But if full frames are placed alternately with others having strips, say of $2\frac{1}{2}$ inches wide, this will not happen.—J. F. H., *Horsham.*

[We beg to assure our esteemed correspondent that in every case this year we have given our swarms full frames of foundation with the greatest confidence, and in no single instance has there been the slightest breakage or any appreciable stretching. With our flat-bottomed foundation the stretching is comparatively *nil*, while combs are formed almost miraculously, the colour of the cells showing that they are formed of the wax supplied. —Ed.]

SAVING CONDEMNED BEES.

I have latterly become interested in bee-culture, and have begun keeping some in your frame-hives. In this neighbourhood I am, I believe, the only one who does so. I purposed, if you would advise me so to do, this autumn, when the bee-keepers in this vicinity begin their annual slaughter, to go to their places taking skeps, &c., and drive their bees for them, showing them how to do it, and taking from them the bees when they did not require them, and putting them in frames with foundation and feeding quickly, as your paper directs, with suitable food, so as to provide for the winter, putting the bees of two or three skeps into a Woodbury Standard, and protecting it for winter. Do you think this would be a feasible plan, and one which would increase my stock at little expense?—W. H., *Castleblaney, Ireland.*

[It *is* a feasible plan, and one that will answer well if not too long delayed in the autumn. In addition to saving the bees, it would be advisable to bargain for the pieces of comb that contain brood and pollen, for after the harvest, these are most valuable, and will, if husbanded, add greatly to the strength of the made-up stocks. In collecting the comb, a few old flat-topped skeps will be found convenient, and a bundle of smooth, pointed sticks, and a packing-needle and a ball of twine will be helpful. The pieces of comb should be cut as squarely as may be, for convenience, in fitting to frames afterwards, and those containing brood should be placed upright in the skep, as indicated in the woodcut. The



first piece will require a stick on each side of it, which should be thrust into the crown of the skep and lean against its top edge, the other pieces being set beside it and 'stuck' in a similar way. When the whole of the crown is covered with pieces of comb, the packing-needle should be brought into use, and all the sticks sewn to the rim of the hive to keep them steady. A little lot of bees may then be put with the brood, and the hive should be covered with canvas, tied round, and carried to a shady place. Comb-brood and bees will travel safely when thus treated, and if stowed away in the dark may be kept for a considerable time without much injury, should circumstances prevent their immediate utilisation. In taking the bees it is advisable to drive each lot into a separate skep, and place it, when sure that the queen is there, in the place of the stock from which it was driven, that each lot may be kept distinct. Attempts to unite the bees when driving will be likely to cause commotion, and perhaps cause them to seek entrance to hives intended to remain, which will alarm the cottager, and give him a chance of complaining, should anything go wrong with the bees he retains, whereas, by driving and hiving each lot separately, they

will cluster in the skeps, as in natural swarming, and may be removed at night without any difficulty. In this sort of work it is best to avoid every possible interference that may alarm the cottager's prejudices, and give him grounds, from his point of view, for attributing after losses to what to him may seem witchcraft and jugglery.—Ed.]

BEE-KEEPING IN NEW ZEALAND.

Last summer I got an observatory hive, described in Vol. VII., having the four sides and top of glass, with space between the top and sides to allow the frames to be moved, as it was for the purpose of standing in the open. I got shutters made to hinge at the bottom for the sides, and a wood top same shape as that on your Combination hives, for the purpose of preventing the sun heating the glass. After hiving a strong swarm in it, I found the sun did not strike the back and one of the sides; so in about a week after I took off the back shutter, but found on doing so numbers of the bees rushed to the exposed glass in great excitement, trying, I suppose, to get out: in the evening I found a number of them dead beside the glass. I took out all the dead, but found the same thing taking place during the next few days, so I reluctantly closed the shutter and the mortality ceased. Do you think, had I left the whole of the sides exposed to the light and got a large enough cover for the top to shade the glass from the sun, it would have remedied it? If so, I will have it done in spring. On hiving the swarm I covered the top of the frames with a quilt, but put the glass top in its place after a short time; but as I saw a good deal of moisture on the glass top after a week or so, I replaced the quilt. As my wood cover fitted closely all round it may have interfered with the ventilation of the hive. I am very desirous of making an upright observatory hive to hold say two standard frames. If you could find it convenient to give me any detailed instructions how to proceed I should esteem it a great favour.—George Moir, *Roslyn, Dunedin, New Zealand.*

[Bees are naturally attracted to the light, but there would have been no harm arise had the hive been full of comb and brood; but getting into the vacant space at the back of the hive, they, in a degree, were lost, and beat against the glass endeavouring to get into the open light. We do not see that much can be gained by constant exposure to light; a simple curtain is easy of removal when a view of the bees is desired, and they will then be seen in a more natural state. In cool weather the top glass should be covered, or there will still be condensation on its underside. As now made, the top of the hive is in strips with eighth of an inch divisions between them, which permit the escape of vapours. We would keep the glass cover on all summer, and cover the hive with a curtain that will keep it dark and protect it from sudden changes if any are likely to occur. A close-fitting outer case will be mischievous; it should have ample top ventilation.—Ed.]

NEW ZEALAND FLAX.

As I see in this month's *Journal* that you think of having some seed of the New Zealand flax sent from New Zealand, I write to inform you that a more simple and certain way to propagate the plant is to divide the roots of an established plant. Seed has been sent here from New Zealand, and from whatever cause it never succeeded. The plants have been sent here from New Zealand and grow with the greatest luxuriance, the blooms towering up twelve and eighteen feet high, covered with flowers each brimming full of honey: so that if the Stewarton hive is the hive of the busy man, the New Zealand flax is without doubt the plant of the busy bee; giving the maximum of honey with the minimum of labour to our little favourites, as, instead of having to roam from flower to flower, they can take in a full cargo at once and transfer it to the combs. The leaves of some plants here are six and seven feet long. They are used by the gardeners, when torn into strips, for tying, and nothing can be better for that purpose they being so extremely tough. This being a plant that loves moisture, I find that a capital plan is to have them placed so that the water from dripping bee-fountains shall find its way to them. They are very hardy, and will grow in sheltered situations in England.—G. Cameron, *Jersey.*

[We have received some newly-imported seeds of this wonderful plant from two sources, one of which we have not been able to acknowledge, there being no address enclosed, but are exceedingly obliged to the polite donors. Should they 'come up,' we shall be glad to prove their capabilities: in the meantime we are endeavouring to provide for the distribution of plants or cuttings as suggested. One of the donors informs us that '*Limnanthes Douglasii* is not exactly a new plant, it having been imported from California in 1832;' nevertheless having only of late been brought forward as a bee-plant, we account it 'new' in that sense.—Ed.]

Echoes from the Hives.

Windsor Cottage, Croydon.—Bees at Croydon.—'I notice with surprise and regret the letter of "J. D." of Croydon in your last issue. If he had written of his own bees only doubtless he was right (from information gained), but then he should have stated the fact, and not used the word "neighbourhood" to mislead your numerous readers. I most unhesitatingly deny the correctness of his statement, and challenge him to the proof. The experience of others beside myself (and I see a great many) is that bees are doing remarkably well about here. I can show "J. D." swarms of this year weighing between 40 lbs. and 50 lbs. What more does he want?'—N. Howitt.

[Our correspondent will see that an attempt now to prove the condition of things several weeks ago can be of little use, for there have naturally been many changes since 'J. D.' wrote (from *his* standpoint) in the beginning of June, up to which time (so far as he knew) there had been no swarms.—Ed.]

Yorks.—'I am creating quite a revolution here in Beverley. They were very far behind the times, but seeing the operations going on enchants them all, and my pupils are getting orders for frame-hives right and left. They are agricultural implement-makers, &c., and very handy at making anything.'—V. E. H.

Cairnie-by-Keith.—'In taking a pleasure trip down Cairnie I made a call on Mr. Cockburn, that I might see his hives and his method of managing bees; and although I have none of them at present, nor a place for them, I bought a hive and some wax-sheets, that my neighbours might see what improvements are coming about. But there were many things to be seen which I could only

give my idea of, and which were of as much profit as the hives. For instance, the queen, which I had never seen —whose existence appeared a fable—can be seen any day in the frame-hive, though not in a straw skep. But the most profitable invention I saw is the honey extractor, which really makes the honey-bee three times more valuable. I was trying to sell some honey in the capital of Strathspey last season for a friend, and could only realise about 4½*d.* per pound, while Mr. Cockburn sold his extracted at 1*s.* per pound; and my impression is, and one of my reasons for writing you is, that the "likes of him" who has an extractor should take a run through the country at smoking-time, as there could be many a swarm preserved from a cruel death, and a great deal more fine honey obtained for our South markets, and I think it would be a profitable spec. Mr. Cockburn, in comparing our home-drained honey with that done by the extractor, said the former resembled pease-brose.'—J. G.

Weston, Leamington, Honey Cott.—'Not a little busy with the bees taking honey, both sectional and extracted, —"Honey Cott" to the truth.'—JOHN WALTON, *July* 14.

Warminster.—'I never saw—perhaps never noticed—so much white clover: on the contrary, the limes here are flowerless. What a loss!'—J. H.

Dumfries, N.B.—'Up till the present (June 27) the season has been indifferent in this locality for the bees. Many bee-keepers with numerous stocks and in favourite situations can only as yet boast of a swarm, or two at most, while many again have had none. There is now plenty for the bees to gather, if there was just a little more sunshine and a slightly higher temperature. The most of the swarming will this year be in July.'—J. S.

East Kent, July 4th.—'On Tuesday, 28th June, it may interest you to hear that a large skep threw off a heavy swarm, and the super boxes, partly filled, were quite emptied of bees. We hived swarm, then drove bees out of the parent hive, cut out seven queen-cells, returned bees and replaced supers. They are now finishing them, and I am about to add another box below the other two. I had six stock hives (one very weak). Four of them have given me six swarms. The seventh swarm I returned as above. One hive has not swarmed. Two of the first swarms came away on the 28th May, and two more on the 30th. My cottage neighbours won't believe in me or in bar-frames (I have only one as yet); but I shall drive all the bees they will let me this autumn, and make them up into stock. One of my first swarms is beyond an ordinary man's strength to lift off the board. It is in a skep 20 in. across by 13 in. deep.'

Kilkeel.—Bee Gloves.—'I find that bee gloves made of Irish plaiding (home made) secure the hands from stings.'—S. ORMSBY.

Eton, Windsor.—'We have had a large honey harvest in this neighbourhood, but very few swarms. Has this been the case elsewhere this summer?'—K. C. J.

Nancy, July 8th, 1881.—'This is the worst season for bees I have seen here yet in five years that I have kept bees. With the great drought there is no honey. I had eight strong hives in the spring, which have all kept themselves going, and that is all. Three of them have bees in the honey-boxes for the last month, but the comb is still unfinished, and little or no honey in it. I have only had one swarm out of eight hives, and that one went back again. I, however, took a swarm of bees attached to a tree in the street, about a quarter of a mile from my house. The people came and told me of it about seven o'clock in the morning, so it must have been a travelling swarm, as it could not have come out at that hour, and had already built a comb on the trunk of the tree, where it had attached itself in the fork of a branch. I never could find out its history, or where it came from; but I got a ladder, swept it into a box, put a cloth over it, and carried it off to the farm where I keep my bees. It is now working away famously at your wooden comb-foundation in the hive you made me last year; and I may mention that the queen has not looked at a frame of nice, clean, last year's comb that I put in the hive, while she has filled your wooden foundation-comb with eggs. She is a beautiful creature, and a remarkably fine one, which makes me think she is of this year. The swarm may be a cast, but is rather large for one, though rather small for a swarm.

'I have been at the Hohwald with Mr. Kunty for a week lately. His Carniolians are doing famously. We made two or three interesting experiments.

'1. Mr. Kunty had a hive which had been queenless after swarming for about three weeks. Having absolutely assured ourselves that it was so, we took a frame of Carniolians with brood, and, having smoked and sprinkled the bees well, stuck them right into the middle of the queenless hive, which we smoked and syruped also. The strangers were accepted without a word of objection, and next day had built, and three days after had covered in, two queen-cells on their own frame. It is certain that these cells were built by the Carniolians, as they are quite straight, and not curved up at the end like our bees do. There is every reason to hope this hive is saved.

'2. Mr. Kunty had a very strong colony, which was in an old hive, and which he desired to put in a new one, at the same time giving it an Italian queen. To effect this we took six frames (out of twenty-four) from the old hive, with bees, brood, and food, and put them in the new hive, placing it in the old place, while the old box, which was left to catch as many bees as possible first, was removed elsewhere. The Italian queen was then put in the new box in the old place, the old queen remaining with the brood and what bees she could keep in the old box in the new place. Next day the new hive had nearly all the working bees, and instantly began to raise queen-cells (six), although the Italian queen was in it. The day after she was accepted; but still the new queen-cells went on, and the third day were sealed in. To-day I hear from Mr. Kunty that he had the singular good fortune yesterday morning of watching the new Italian queen while she for half-an-hour carried on war on her young rivals in their cells, and afterwards while the bees came and dragged out their dishonoured corpses. It seems to me singular that the bees went on with the queen-cells after they had accepted the Italian queen.

'I may mention that Mr. Kunty and I failed entirely to drive, by smoke and tapping for above an hour, a colony of Carniolians from one of the long boxes or hives in which they are sent from Austria.'—G. F. PEARSON.

The Hohwald, July 26th.—'I send you a card (though I fear it is too late for this month) to say that the queenless, or common black bee hive, into which we introduced a frame of Carniolian brood with bees early this month, and which I told you had commenced to build two queen-cells on the frame which was introduced, has now a fertile queen (Carniolian, of course), and the introduced frame, as also other frames, is now full of young brood eight days old. The brood is nursed apparently by the Carniolians, who seldom seem to leave the hive, the work outside being done by the old black bees, which, however, have much decreased in numbers during the month. This all seems to me very interesting. All the other operations have fully succeeded with the Italians. A cross of Italians and Carniolians seem to be doing very well.'—G. F. PEARSON.

Wisbech, July 12th.—'The season which is now nearly over has been a fair one in these parts for honey. I have a considerable amount for sale—about 200 lbs.—in the 1 and 2-lb. jars I bought through you. It is good honey; white, and has set hard. I have sold a great deal to my friends, &c., but have supplied them all.' —GORDON WOODGATE.

Queries and Replies.

Query No. 398.—*Keeping a Hive Queenless.*—I have a hive in which I inserted a queen-cell, as their own cell did not hatch. The inserted cell was from a hybrid stock. A day or two afterwards I gave them eggs from a pure Ligurian stock, and I found they raised six queen-cells on that frame. On looking a week after, and intending to *cut out* the inserted cell, I found it gnawed through. Next day I found the six queen-cells torn open. I may add I searched for the queen before the six cells were torn open, but could not find her. Now, as I do not care about the hybrid queen, would it do to take her out of the hive and leave it queenless for the summer, and with nothing to do but store honey; or would they leave the hive when they found they had no queen, and no eggs? Or should I leave the hybrid queen to lay for this summer, and kill her in autumn, and unite the hive with another? And if this is done should I unite the queenless bees to another hive, or *unite another hive to them;* and in which case where should the united hive be placed,—on a new stand, or where the queen came from: or where the queenless hive stored? I shall be glad to have these questions answered. My bees are doing very well, and all survived the winter, and were quite strong in spring.—A Subscriber, *July 5.*

Reply to Query No. 398.—The hybrid queen is probably now laying; but if not wanted it would be well to remove her, and in a fortnight cut out all queen-cells raised on her brood, and insert a comb of pure Ligurian eggs and brood, to enable the bees to raise a queen as first desired. The previous absence of the queen has given the stock opportunity for gathering honey (having no brood to attend to), and another enforced cessation of breeding will give further opportunity for similar labour, and at the end of the season there will be a young Ligurian, who will do her best to re-populate the hive. Keeping a hive queenless all the summer would enable the bees to gather to their utmost ability; but after the brood had hatched the population would gradually get weaker, and the bees becoming old and worn would not be worth uniting to a stock having a valuable queen, the risk to her being so great under the circumstances.—Ed.

Query No. 399.—*Removing Bees from a Cottage Roof.*—I have a difficult task, which I have undertaken 'for a cottager,'—to get a colony of bees that have been under some tiles on the roof of a cottage all the summer, as they get into his chambers and sting the children; and to save the lives of the bees I shall attempt it. May I ask what is the best way?—Robt. Thorpe, *Sleaford.*

Reply to Query No. 399.—As there is not likely to be a means of getting into the cottagers' roof from the inside, we would remove some of the tiles and attack them from without. One of the easiest ways would be to provide a hive of comb and brood from which the bees have newly been driven, wrap it up warmly, and have it 'handy' while on the roof.

Having laid the nest bare, we would 'quiet' the bees with smoke, cut away all their combs, shake the bees on to the tiles, or anywhere, and set the hive of comb and brood over them. The combs of the bee-nest can be brought away and dealt with at home, which will be much better than 'transferring' them on the house-top. They can be given to the bees driven out of the skep in the first instance. The bees on the house-top having lost their own combs, will be unable to resist the temptation offered by the skep of brood, and will soon take possession. It is possible, however, that the queen may not have been observed, and may have crawled off with a knot of attendants, in which case, the hive of combs should be placed over them, and they will go up, and at night the whole may be carried away in a wrapper of cheese-cloth, and should be temporarily placed a mile or so away from the cottage. It is little use to remove bees from such places 'to get rid of the nuisance,' unless means of future entrance be stopped, or the odour of the nest completely destroyed, otherwise it will almost certainly be made the home of a future swarm.—Ed.

Query No. 400.—*Transporting Bees to the Heather.*—Will you oblige me by telling me how to give proper ventilation to your Combination hive to send it in the evening some miles by *cart* to the neighbourhood of the heather, where I intend leaving it for some weeks? Supers are on it, which we hope not to be obliged to remove as some are half filled. We have filled the hive with bars (frames) to the number of some seventeen, therefore the bees are very numerous, requiring no doubt the more ventilation. We have found your deep-comb hive invaluable for making immense stocks instead of multiplying them, and have taken 36 lbs. of honey and comb already. This summer rejoices the hearts of all bee-keepers.—K. C. J., *Eton College, July* 14.

Reply to Query No. 400.—Taking a frame-hive heavy with comb and brood, full of bees, and with partly-filled sections upon it, 'some miles *in a cart,*' is a ticklish proceeding, and one we can scarcely advise. The most ventilation will be given by making a light frame the size of the floor-board, covering it with perforated zinc, and putting it in place of the floor-board, and putting a second frame covered in a similar way on the top of all the frames not occupied with sections; taking care that the zinc is kept at least half-an-inch clear above the frames. We should infinitely prefer to send such a hive by hand, rather than by cart. A stout, springy stake lashed to the legs on each side, and two men to carry, would be almost certain to reach the journey's end in safety. Six miles could be covered in two hours, and if a horse and cart be used one man will certainly be needed to take charge, so probably the two men would be cheaper.—Ed.

Query No. 401.—*Hives overheated.—Ventilation.*—I fixed one of the supers on the hive where the bees clustered; they are in it, and have made some comb; but every day almost—to-day was the fifth time—they have swarmed out, and left it, and go back to the hive. I have just been to look, and the super is 'chock' full of them. I fancy they have not room enough now, and I wondered whether it would be possible to make a hole in the top of the supers just fixed, and put the other on it, and so let them work in the two. Perhaps you would say if this would be expedient.—C. N. B.

Reply to Query No. 401.—The hive is evidently too hot, and the bees cluster outside because their presence within would cause increased heat, and melt the combs. Giving additional space above would be helpful in a degree, but what is needed is more door space below. To effect this we sometimes set a hive up a quarter of an inch off the floor-board, all round; at others we provide wedges of the length of the hive, from front to back, half an inch wide at the thick end, tapering off to 'nothing.' We then quietly place a strong screwdriver or chisel in the entrance, prise up the hive front, and slide the wedges under both sides of it, thus giving an entrance-way along the whole alighting-board. While the honey income continues there is nothing to fear from robbers, but with its cessation the usual care must be exercised, and the entrance reduced to proportions the bees can guard.—Ed.

Query No. 402.—*Supering.—Storefying.*—One of my hives has now on a pair of Lee's supers, nearly sealed in the *outer* combs, and the other has 32 sections on it, which also have the outer combs nearly sealed, and both hives are crammed with bees. Do you advise me to remove these supers as soon as the outer combs are

completely sealed, and then to put an empty super on each (with foundation of course), or should I tear off the paper covering of the top of the supers, and put a super on the top of those now nearly filled, without disturbing them? or what other course would you advise? I see the limes about us are now in full bloom, and they are gathering fast the last week. I enclose stamped envelope.—J. H. R., *Hampstead, July 13th.*

Reply to Query No. 402.—Our advice was to open communication above, at once, and put on more supers that the bees might be kept fully occupied, and when the lower supers were filled, and sealed on the outside, to remove them, and lower the pile.

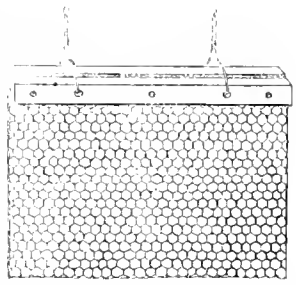
This is the soundest practice in supering—putting additional supers *under* those nearly completed induces rapid comb-building, but too often at the expense of the honey above, the supers remaining incomplete.—Ed.

Query No. 403.—*Driving from Box Hives and Hives with Crooked Combs.*—A 'Neighbour' and a 'Cottager' (hives) are quite full of bees and brood from end to end. They have been hanging out and skirmishing with their drones for more than a month. Both have their frames locked together by comb. Would it be safe to attempt to drive as in a straw hive? *i.e.* inverting and rapping the sides?

Reply to Query No. 403.—There is a difficulty in driving from box-hives and from frame-hives in which the combs are built cross-wise, because, being attached to the hive itself, they (the combs) are not easily jarred or shaken without risk of breaking them down. We have found it best, in such cases, to invert the box or hive upon a soft, yielding base (a coil of hay-bands or a horsehair cushion will do), and by striking it perpendicularly on the corners with a hammer, have had the most successful results. The blows should be moderately hard and rapid, and varied to different corners occasionally. Twenty-one days after driving, or after swarming has taken place, the hive should be inverted, the combs separated from the hive, and the latter lifted clear away, leaving the set of frames and combs standing. They will be wrong way upwards, but can the more easily be dealt with. The combs and frames should be separately released from the heap, and such parts of the former as may be worth preserving should be tied into the latter, as in the ordinary mode of transferring.—Ed.

Query No. 404.—*Foundation for Skeps.*—I have a skep on the point of swarming, apparently, and wish to put a super thereon, but do not know how to adapt the guide-comb. Will you, please, tell me, and at the same time *send me a piece of guide-comb ready for fixing?* I have had three swarms from my solitary hive, and it is the hive of one of these swarms that now appears full. Mine are only old-fashioned straw skeps at present, though, possibly, I may commence the 'scientific,' some day. The super I am going to use is of same kind. I have just 'gumption' enough to know that I must place a piece of comb *internally at or near the crown* for a guide, but how to do it is the question?—S. C., *Louth, Line.*

Reply to Query No. 404.—Comb foundation may readily be used in skeps and their supers, by the exercise of a little ingenuity and care. For stock-hives sheets of the thick worker pattern should be used; for supers thin is preferred, but thick may be used when it is intended to crush the comb and obtain run honey. For stock-hives sheets should be used that will nearly touch the hive sides, and reach from the crown to within an inch of the floor-board. To fix them, lay them flat upon a table, put the top edge between two strips of wood, each a quarter-inch thick, and half-inch wide, and carefully tack them together with three or four fine tacks; bore two or three holes with a bradawl, as indicated, and pass wires through them, which twist together as shown in the wood-cut, and the foundation is ready for hanging in the hive. To effect this, long packing-needles are required, which should be thrust through the crown at the points through which the wires are to pass, that they may be drawn through and fastened. The needles may be made of the top halves of umbrella ribs, they having eyes ready made, and the wires when drawn through may be fastened by twisting them round a wire nail, which should be thrust into the crown of the skep on the outside.



Much trouble will be saved by first lining out the hive crown, thus:—Draw lines across it in the direction the foundation is to hang, an inch and a half apart (for supers two inches), and then draw others parallel to each other, at right angles across the first set, exactly where the wires are to pass through, as indicated in the figure, the holes and wires being made and fixed at corresponding distances in the strips to which the wax-sheets are fixed. The needles will, of course, be thrust through at the points where the lines cross: and if the strips and sheets have been carefully arranged in sizes there will be no difficulty in fixing them.

In hiving a swarm the skep would have to be set upon the ground, slightly raised, to admit the bees which would have to be thrown down near it, that they may run in, and then, with great care, it should be placed upon a level floor-board on its permanent stand.

The whole business could be done in less time than it has taken to describe the operation, and we have every confidence that skepites having once experienced the advantages of comb foundation would never again put a swarm in a hive without it.—Ed.

Query No. 405.—*A Beginner's Queries.*—Having begun with the *Bee Journal*, I feel convinced that the moveable-frame hives must be far preferable to skeps, and more profitable. Having decided to commence this season with frame-hives, I bought one 17 inches long by 18 inches wide by 9 inches deep, but the 10 bars are all close together; and when you want to extract a frame of honey, a knife has to be inserted between to cut the propolis, also the floorboard is fast nailed to the hive. These things are a great disadvantage, I want you to give me advice through your *Journal*. (1.) Is it necessary for the bars to be apart? (2.) What advantage is there in having supers? (3.) Could you not take a full frame away from the stock hive, and replace with an empty one, as access to stock-hive for artificial swarming, &c., would be difficult if supers were on? (4.) If by taking the end frames only would it interfere with brood? (5.) Supposing you have a super on, are the sections to be taken as filled and replaced with empty ones, or are all to be left till full? (6.) If two or three thicknesses of India matting (sample enclosed) were tacked on over frames in hive in winter, would it not absorb moisture and do away with fear of internal dampness? (7.) Would it require the wooden cover on over the matting, supposing the hives were kept in a well-sheltered bee-house? (8.) If a good honey district would the size hive I named be large enough for taking frames of honey without having supers? (9.) Could it be managed without a queen-excluder at each end, to get honey free from brood? (10.) What quantity of wax ought ordinary skeps to produce after honey has been taken from it, and wax melted down? (11.) What

price ought I to obtain for pure honey from English bees finest strained? (12.) Where could I dispose of it? (13.) Which is the best way of putting it up in most saleable quantities? (14.) Is there any particular market for it? I find a difficulty in disposing of it. (15.) And is it used for any particular purpose beside for table?—HONEY.

REPLY TO ABOVE QUERIES.—These are novice's questions, but as replies to them may be useful to other beginners we give them without hesitation.

(1.) It is necessary for the frames in the part of the hive to be devoted to brood, to be an inch and a half from centre to centre of each other. Do not use distance-tacks, as a means of keeping them apart, they (the tacks or pins) are always getting in the way when manipulating. Mark with a knife or a pencil the points where the centre of each bar should rest, and in use, keep the bars as true to those points as possible. Frames for honey should be two inches from centre to centre, they may first be put at the former distances, and gradually extended. (2.) Supers are preferred because the combs are less likely to be contaminated with brood or pollen, though the bees prefer to store their honey in the body of the hive. (3.) Full frames may and often are taken away from the body of the hive, and if other frames be given, filled with foundation, new combs will quickly be built, *i.e.*, in the summer time. Vast quantities of honey may be taken from the stock hive by means of the extractor, and the combs replaced uninjured. (4.) We have many times had hives as large as you name with every comb charged with brood, but honey may be 'extracted' without hurting it. (5.) Sections may be taken as soon as they are completed, the unfinished ones set close, and empty ones added outside. During a honey glut empty ones may be put where the full ones were taken from. (6.) The rush matting will do very well, but as it will easily tear, it is better to lay a thickness of linen or calico first upon the frames. Do not use a crown-board at all, it prevents due ventilation. The matting is not to absorb, but to allow the moist vapours to pass through. (7.) The roof may be dispensed with if the hives are in a shed, but we would use them to protect the supers when on, and to keep out mice and dust and to prevent displacement of the winter covering. (8.) The size of the hive is not too large for a good honey district. (9.) Without a queen-excluder the queen can get to all the combs, but for hives for extracting from, this is of little consequence. (10.) An ordinary skep will yield about a pound of wax if the combs are not too old. Very old comb yields very little. (11.) The price of run or extracted honey varies from 6*d.* to 15*d.* per lb., according to locality and supply. In London at the shows it commonly sells at about 1*s.* At the late Birmingham show honey in sections made 2*s.* 6*d.* per lb. readily, a very good reason why sectional supers are so highly esteemed. (12.) Put yourself into communication with the Assist. Hon. Sec. of the British Bee-keepers' Association, and he will put you in the way—his address is Mr. J. Huckle, King's Langley, Herts. (13.) Run honey should be put up in one or two pound glass jars, neatly labelled. Sections should be glassed on both sides, and prettily gummed round the edges with paper to cover the wood. It is necessary to please the eye, to make the mouth water. (14.) There is no special market for it, but if good and put up in an attractive form, it will sell readily at any of the shows. Dealers will always buy because they can always sell such packages. There is no sale for gallipot stuff, such as is generally sold by grocers looking like a mixture of brown sugar and paste. (15.) Honey is not largely used in England, except as food and medicine, and with the growing taste for it, it is not likely to be cheap enough for common purposes for some time to come.—ED.

QUERY No. 406.—Can you account for the dwindling of the numbers of a hive to but a few hundred bees under the following circumstances? I had a strong colony in May, in one of your large Combination-hives. I added to the nine frames already in it five more from another hive. No swarm is believed to have gone from it, and there was no disease in it, and when examined the presence of brood showed a queen had been there quite recently. It has been a puzzle to me, as three other hives, also strengthened with extra frames of comb and brood, have done very well.—K. C. J.

REPLY TO QUERY No. 406.—It seems almost certain that the hive swarmed unobserved, and has since lost its queen. All else being healthy, there appears no other way of accounting for the bees' disappearance.—ED.

QUERY No. 407.—*Bees building across.*—About the middle of June I hived a cast in one of your Makeshift hives, which had been used before. I placed a comb from a super containing a small amount of honey in one of the frames as a guide, not having any wax-foundation. On looking into the hive a few days after I did not perceive anything unusual; and when next I inspected the hive I found that instead of building in the bars, the bees have constructed the combs across the hive parallel to front and back; consequently, all the advantage of the frames is lost. Can you advise any remedy, or is the mischief irremediable? The only plan I can think of is to take the whole of the combs out and refix them in the frames, an operation I feel rather doubtful about attempting.—LOGAN B. EDGAR.

REPLY TO QUERY No. 407.—The combs being young and tender it will not be wise to attempt to rearrange them this year. The stock may be broken up, the honey taken, and the bees united to another stock in autumn, if it be thought desirable; but if to be preserved, it would be better to deal with it next year, twenty-one days after swarming.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

PAGHAM, CHICHESTER.—*Driving Young Swarms.*—It was not good policy to 'drive' a second swarm of five weeks' standing, and it is no wonder that the combs broke down, being so young, tender, and unfinished. It is exceedingly difficult to make bees leave a hive of this kind by driving, for, there being space in it unoccupied with comb, the bees congregate there and will not ascend. Having taken the bees out of the skep, we should not think of putting another swarm into it. A new skep is a handy vessel to capture a swarm with, being light and rough to afford foothold for the bees, and an old one is a convenient thing in which to store bulbs and tubers for protection in winter; but now that comb-foundation can be used in sheets of full size in frame hives, and combs made in twenty-four hours, we cannot advise that bees be again put into them.

LIGURIANS OR HYBRIDS.—*Cullinagh, Skibbereen.*—The bees sent are not pure Ligurians, but are half-breeds, commonly known as hybrids. Their mother, though the daughter of a pure Ligurian queen, evidently mated with a black drone, and hence her worker progeny partake of the nature of both parents. It is most unfortunate for those who wish to breed pure Ligurians that there is no known method of securing fertilisation from selected drones.—ED.

AN AMATEUR, AND A LOSING ONE. *High Street, Castle Carey.*—Mr. Cowan's *British Bee-Keeper's Guide-Book* will suit you admirably. Price 1*s.* 6*d.* of all hive-makers.

BEES NOT SWARMING.—Why *wait* for them to swarm, when you may swarm them artificially? and why let them hang idle outside the hive, if honey is wanted, while the season is passing away? Give super room at top, and more entrance way at bottom, and set them to work; it will conduce to their pleasure and your profit, and tend to change the description at the head of this paragraph.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.

ANNUAL COUNTY SHOW,

To be held in LORD LURGAN'S DEMESNE, at LURGAN, on Saturday, 20th day of August.

OPEN CLASSES:—

CLASS.
1. For the best Stock or specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive. 20/0 10/0
5. For the best Exhibition of Pure Honey in Sectional Supers, separable, in sections of not more than 2 lbs. weight. 10/0 5/0
7. For the best Exhibition of Pure Extracted Honey in Glass Jars, not to exceed 2 lbs. each jar; each entry to consist of not less than four jars. 7/0 3/0
8. For the best and cheapest Hive, on the Moveable-comb principle, in Wood or Straw, to include Cover, Stand, Floor-board, and facilities for storing surplus honey. 20/0 10/0

CLASS.
9. For the best and cheapest Complete Hive, on the Moveable-Comb Principle, suitable for cottagers. Price not to exceed 7s. Any number to be supplied at the price named. 20/0 10/0

SPECIAL PRIZE, for the best Collection of Bee-flowers, in dried state or otherwise, each to have a label attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers—
A copy of *Neighbours' Apiary.*

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General Manager ... ... T. DOVE KEIGHLEY.

A GREAT HONEY, HIVE, BEE SHOW, and HONEY FAIR, will be held on Thursday and Friday, 11th and 12th of August, 1881, under the patronage of the DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

LECTURES will be delivered within the Building on the Evening of Thursday, 11th August, at 8 p.m., by W. N. GRIFFIN, Esq., and the Rev. J. G. DANGAR, M.A., the Hon. Secs. of the Devon and Exeter Bee-keepers' Association, on BEES and BEE-KEEPING. There will be interesting PRACTICAL APIARIAN MANIPULATIONS with LIVING BEES, conducted by a London Expert on both days in a Tent, where Visitors may witness the various Manipulations in safety.

PRIZES will be offered, including a Cup and the Medals of the British Bee-keepers' Association, and Special Prizes to Cottagers.

ADMISSION.—First Day, from 1 to 6, 2s. 6d., after 6 p.m. 1s.; Second Day, from 10 till 6, 1s., after 6 p.m. 6d.

Subscribers to the Winter Gardens will be admitted as usual on presentation of Season Tickets; and Members of the Devon and Exeter Bee-keepers' Association will be admitted Free on producing their Cards of Membership.

The COMPANY'S ORCHESTRAL BAND will attend and perform at intervals during the Exhibition each Day.

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A MONTHLY MAGAZINE OF HORTICULTURE AND FLORICULTURE.

EDITED BY DAVID THOMSON,

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AIDED BY A STAFF OF PRACTICAL GARDENERS.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 101. Vol. IX.] SEPTEMBER, 1881. [Published Monthly.]

Editorial, Notices, &c.

SEPTEMBER.

The weather is a topic always uppermost in the minds of ardent bee-keepers, and hence it is generally the subject of remark at the opening of our monthly budget. It is a delightful task when we are able to describe it as glorious; to dwell on the wonderful things the bees have been, and are doing, and all goes merrily as a marriage-peal. With supers filling, the extractor in constant use, and honey so plentiful in the fields that the bees will not stoop to robbing, the thermometer of one's hopes rises to ebullition point, and the delighted bee-keeper 'boils over' with pleasure. In the major part of England bee-keeping has this year been a pleasant and extremely profitable pursuit. The weather has been, if not all that could be desired, very far better than during the average of seasons, and where a successful result has not been obtained it could scarcely be attributed to unpreventable causes. In Ireland, Scotland, and Wales, reports are unhappily not so pleasing, cold winds and rain having prevailed, and as a consequence little honey has been gathered. In August of last year the bright weather which ruled throughout the kingdom was a blessing indeed, filling the hearts of agriculturalists with thankfulness and their barns with Nature's choicest productions; but in the present year the month has been remarkable for its adverse character, nearly every day wet and miserable, crops spoiling, the hope of a harvest disappearing, and gloom, generally, settling upon the public mind. During July a comet, visible above the horizon, was hailed as the harbinger of good, and during its stay the weather was most delightful; in August a second appeared, and ever since the elements have been distracted. We don't want any more August comets, if the present is a fair specimen, and if it is right to judge them by their supposed influences.

USEFUL HINTS.

Winter Preparation.—In many parts of England the summer is ended, and all chance of a further harvest past, in which case it becomes a duty to prepare for the winter that is imminent. It is easy to put off the duty; to delay it to a more convenient season, under the belief, or the assumption of belief, which is much the same to the procrastinator, that 'there is plenty of time;' but under the circumstances and conditions present, if our readers will bear with us, we will endeavour to show that to be well done it should be done now, and the *now* here written is intended to apply in all cases and places whenever the honey-gathering season ceases.

Stimulative Feeding.—Amongst beekeepers of the modern school it is fairly well understood that with the declension of the honey yield, the production of brood declines also, and that when once stayed and the queen disposed to take her autumnal rest, it is most difficult, notwithstanding the stimulative effect of food duly administered, to cause a resumption of her oviparous duty. When the cessation of breeding follows on an early decline of the honey yield (say by the end of July as in the present year), it will be evident that by the time the bees, of necessity, go into winter quarters (say about the end of October) those alive will be three months old at the least, and half worn out, while those whose honey income has been continued, as at the heather, for instance, until the frost compels them to keep within doors, will go into winter quarters with young bees, newly hatched, and unworn. It is an understood and admitted fact, that the life of a bee does not depend upon the date of its birth, but on the amount of labour it performs. During the summer busy time the bees do not live more than about six weeks, they wear themselves out with work, but during the winter time of comparative idleness their life is prolonged to six or more months,—facts that have been proved 'to the hilt' by the introduction of Ligurian queens to black stocks,

and determined by the dates when all the blacks of the population have been found to have died out. When bees go into winter quarters and remain quiet they are safe, but should exigencies arise and cause activity its wearing effect soon becomes apparent in the diminishing population. With old and worn bees this diminution is rapid and stocks dwindle until they are comparatively useless; with young ones the winter vicissitudes will be better resisted, and it is therefore evident that to be prepared for safe wintering the hive should contain a larger proportion of young, unworn bees; and to bring about this desirable condition the income of food should be prolonged artificially, or, in other words, as soon as the harvest fails bees should be fed that they may be induced to keep up the breeding propensity in the queen* to as late a period as is consistent with safety to the brood.

Wasps' Nests should be destroyed, that queen wasps may not be produced for next year. We have almost cleared our own neighbourhood of the pest. A penny to the urchin who discovers the nest, a fourpenny water squirt, a gill of turpentine, and a garden trowel, and the pests are at our mercy in a twinkling, and the nest destroyed in broad daylight in a quarter of an hour. The squirt drives the turps into the passage, the fumes kill the guards, and the trowel, in the hands of a sturdy man, quickly unearths the nest, which is at once crushed under the heel, or thrown into the water for the fish to prey upon. We have an extraordinary crop of stone fruit, but scarcely a wasp touches it, while a mile or two away they are in the orchards in droves, and seeing that their destruction is so easy, our verdict to the complaining owners is that it 'serves them right.'

Prevent Dysentery.—This is the winter scourge of dilatory bee-keepers and of those who will not adopt the advanced principles that experience has proved to be sound and correct. Dryness of the hive is of the first importance during winter. When breeding is going on, a moist atmosphere is essential, but in winter moisture condenses on the combs and on the parts of the hive farthest from the bees, it thins the unsealed honey and causes it to ferment, and such food being taken by the bees ferments in their bodies, causing abdominal distension and dysentery, which, from our experience, generally developes into foul brood. To prevent this calamity, all stocks that require feeding should be fed sufficiently early to enable the bees to evaporate the superfluous watery particles from the food they have put into their cells, and to seal it over that it may not be influenced by the hive's atmosphere. The frames should be covered with porous material, the quilt or chaff-cushions being all that is necessary. They should lie close upon the tops of the frames, should be of sufficient thickness to retain heat, yet sufficiently porous to permit the passage of the vapours generated by the bees. They should be covered by a waterproof roof, yet the free passage of air should be permitted between it and the quilt, that the vapours from the bees may be carried away. The chief present duty, however, is to feed the bees that are needy in such a way that they can seal over the food before the cold weather sets in.

In our next, directions will be given for winter packing, after which no feeding ought, under any conditions, to be necessary.

Presence of Drones.—In localities where the harvest is past, the presence of drones suggests the probable absence of queens, and stocks containing them should be examined without loss of time, and one or two combs of brood from strong stocks should be given to enable the bees to raise queens for themselves if they are sufficiently numerous to warrant the experiment. It is of little use giving Ligurian or other valuable queens to such, as the bees will be likely to destroy them.

Ligurian Queens in Autumn.—A great diversity of opinion exists as to the advisability of giving Ligurian queens in autumn, and we generally advise against the proceeding in *late* autumn. Queens obtained from honourable breeders are almost certain to be young queens at this time of year, and they are nearly sure, when safely united, to commence breeding largely, often in too great a degree for the season, when the cold weather may come upon them suddenly and cause the bees to desert their brood, leaving it to die and rot in the cells. Ligurian queens are cheaper in autumn than at any other time, and hence are largely imported and united.

Queens ceasing to Lay.—When queens have ceased to lay, through the early stoppage of the honey income, it is very difficult to cause them to begin again until after their natural period of rest. Under such circumstances it is well to depose a queen forthwith, and unite a young Ligurian, which may be done, with care, provided there is hatching brood in the hive. A new, and, of course, young population will thus be secured, to go into winter-quarters, an acquisition greatly to be desired. Gentle feeding will be necessary to ensure this.

Narrowing Entrances.—As the season advances and honey becomes scarcer, entrances should be reduced as a preventive of robbing; and as cold weather comes on they should be so arranged that only two bees shall be able to pass in the gangway.

Bees clearing Comb Débris.—After ex-

* Our Leaflet on *Feeding*, free for a *1d.* stamp, supplies much useful information on this important subject.—Ed.

tracting and draining the cell caps sliced from sealed combs, there will be some honey, or the suspicion of it, in the débris, and this is often injudiciously exposed for the bees to clear up; but as it often leads to robbing we this year adopted a different method for its disposal. Having a strong stock with an entrance at the side as well as at the front we placed an empty hive at the side, about four inches away, its alighting-board touching the floor-board of the strong stock. Into the side hive we put a heap of débris, and laid an old floor-board on the top, as a temporary arrangement, to keep out the wet. The bees speedily discovered the treasure, and passed from their own to the adjacent hive, and took possession in real business fashion, propolising every cranny in a marvellous way; and they soon cleared up every trace of honey, and fixed the débris together in lumps. The old floor-board put on the side hive had a sunk entrance cut out of it. This was soon glued up, as if the bees were afraid of being molested while devouring the loose honey. Since then we have utilised the back of our Irish or Combination hives for the purpose, raising the dummy in rear of the frames, to give the bees access to the comb chips, and right well has the arrangement answered. Every day proves some additional advantage in the arrangement with frames across the hive, and plenty of space in the rear.

Bee Flowers.—Our self-sown Limnanthes has come up as thick as grass, and during the next fortnight, while pricking out, we can supply seedling plants to any who desire them at 5*s.* per thousand. Seed may still be had, and a thousand or more plants raised for a shilling. Florists, who know little of the plant, procure seed (to order) and advise that it be sown in the spring, in which case the flowers come late and are comparatively useless, their chief value lying in their 'coming in' between the orchard blossoms, and the limes and clover. In a mass it forms a beautiful gold and silver bed, the abundance of flowers hiding almost every bit of the parsley green foliage.

Arabis Alpina.—Now that the earth is moist, and the sun less powerful than in July, this plant will strike freely, 95 per cent rooting. It follows the crocuses in March, and blooms freely when established. Bees work upon it at all times when the sun shines.

Willows.—The palm-bearing willow, sprigs of which children wear on 'Palm Sundays,' is a valuable plant for bees in spring, and where facilities offer themselves it should be planted at every pond side, ditch, or damp corner. Near the drip of a water-butt it will thrive, and make a desirable shade, and when covered with catkins, called 'goslings' in Suffolk, from the pretty softness of their yellow coats of pollen, they are handsome objects. Salicylic acid is obtained from the willow, and is the cure for foul-brood. "Since our willows have come into full bearing, about three years, we have enjoyed almost perfect immunity from the disease, which usually shows itself most unmistakeably in spring, and we have often wondered whether the willow pollen has had any influence in this respect. We have no willows to sell, so in making this suggestion shall, perhaps, escape being accused of 'having an axe to grind.' Perhaps others having willow pasturage will give their experience thereupon.

Suggestions.—As we wish to give full directions for winter arrangements and packing in our next issue, it will prevent a great deal of trouble and much repetition, if our readers will give early intimation on any special points on which they wish for information, that we may make our article as comprehensive as our limited ability will permit. We have every desire to be universally helpful, but in the multitude of the subjects may, through absence of reminder, fail to touch upon points of incidental interest.

THE GRIFFIN HIVE.

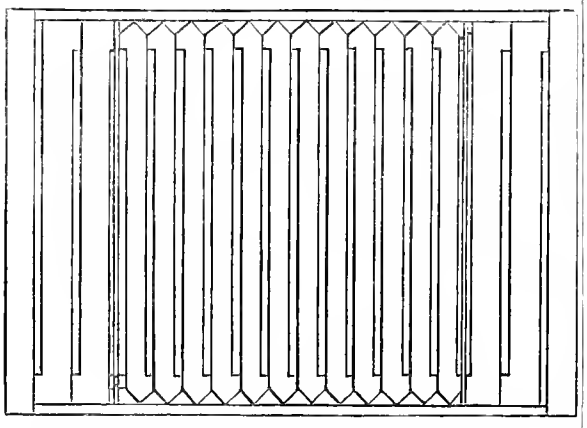
The chief features of this hive, to which the first prize was awarded at the British Beekeepers' Association Show at South Kensington in July last, deserve to be recorded, if only to show the opinion of the judges at this advanced period of English apiculture. Three prizes were offered 'for the best Moveable Comb Hive,' to be exhibited in duplicate; 'firstly, for summer use, with facilities for harvesting honey;' secondly, 'with arrangements for wintering.'

The hive is a large one, double-walled all round, and standing upon four stout, spreading legs; it has ample entrance space, shaded by a gable-fronted porch, and is surmounted by a spacious roof hinged to one end, which, when closed, gives the hive the usual appearance, nothing being remarkable excepting perhaps its ponderosity. The walls along the front and ends are of wood, those at the back are of glass with an outside shutter, the spaces between containing (apparently) dead air only; they are of about $2\frac{1}{2}$ inches in thickness.

For summer use the hive is furnished with wide-shouldered frames of the 'Abbott' pattern, right-angled, measuring $15\frac{3}{4} \times 9\frac{1}{4}$ inches outside, and resting upon heavy brass runners, *e e*, about two inches wide, extending from end to end of the hive.

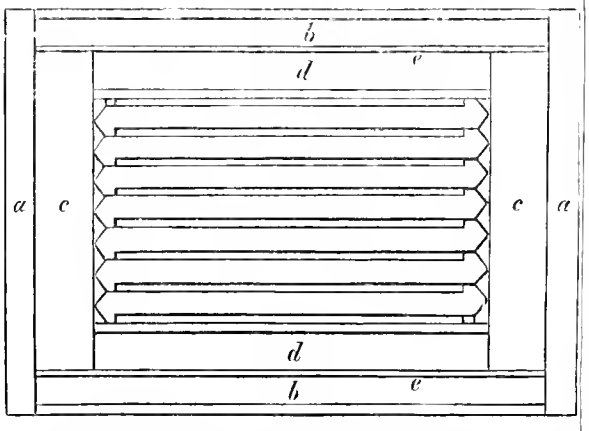
There are thirteen of these frames in the hive at right angles with the front, and at each end

two section frames filled with sections, each frame being two inches wide, diaphragms of excluder-zinc being placed between the brood-frames and the sections, at each end of the brood-nest, which was surmounted by a crate of sections. The woodcut gives an idea of the



frame-arrangement, it being a plane sketch of the top surface of the hive proper. For winter service, the whole of this arrangement undergoes a radical change, which, when effected, if it can be done with safety, will doubtless thoroughly protect the bees from outside climatic influences.

The frames for winter are reduced to seven in number, and they are located in the centre of the hive, this time parallel with the front and back, where they are surrounded by protective packing in, what may be pardonably considered, an extravagant degree, their ends rest upon dummies of thin wood, each double with dead air (?) between, and each being $1\frac{1}{2}$ inches thick. They are not shown in the wood-



cut, being hidden by the ends of the top bars that rest upon them. These dummies are put close up to the frame ends, touching them all the way down and thoroughly preventing circulation of air (and heat), a desideratum beyond a doubt, during the winter months, as we have many times explained. The dummies thus fixed ought to be amply protective; but to make assurance doubly sure, Mr. Griffin has filled the vacancy at each end of the hive with huge cushions of cork-dust, *c c*, four inches in thickness, which closely fit, and thus there are between the ends of the comb and the external air, eight inches of non-conductive packing, viz., $1\frac{1}{2}$ inches of hollow dummy, 4 inches of cork-dust, *c c*, and $2\frac{1}{2}$ inches of hollow hive wall, *a a*. At the front and back the combs are enclosed by half-inch boards, between which and the hive walls there are cushions of cork-dust, *d d*, $2\frac{1}{4}$ inches in thickness, making a total of $5\frac{1}{4}$ inches of packing on each side of the combs, as follow, viz., a half-inch board, $2\frac{1}{4}$ inches of cork-dust, *d d*, and $2\frac{1}{2}$ inches of hive wall, *b b*.

The frames are amply covered with quilting and packing, but the floor-board has escaped the careful attention of the designer of the hive, and may be considered the only part vulnerable, otherwise bees in it will be completely shut off from the outside influences usually taken into account. The principles involved in the changes from the summer to the winter arrangement, and *vice versâ*, will doubtless be criticised; but our difficulty is as to the means by which the alterations are to be carried into effect. The hive is a large one, and presumably is suited for the locality in which it was constructed; and we are, therefore, to assume that in summer all its parts will be fairly occupied by bees, and being so, we are puzzled exceedingly to know how the winter arrangement of the frames can be safely, not to say easily, brought about; and we venture to hope that the inventor or the judges will favour our readers with an explanation. It is evident, at least apparently, that before the cork-filled cushions, *c c*, *d d*, can be put into the hive, all the frames of comb must be lifted out and put somewhere else for the time being—but where? And where will the bees be all the time? If they would obligingly get into the centre of the hive the difficulties would be diminished—but will they do so? The cushions being in, the half-inch boards next to *d d* have to be inserted, and then the two hollow dummies on which the top bars are to rest, have to be forced down between them, and into the reduced space left seven of the frames of comb and bees have to be pressed home, each frame tightly fitting, end on, against the hollow dummies above mentioned.

We cannot think either of the parties appealed to could have thought of the difficulties involved herein, or if they did, we hope they will be able to smooth them away. The price of the hive is 3*l*. 10*s*., but we cannot say if it includes all the 'arrangements,' or whether amongst them is included a chest to hold such as are not in use during summer and winter respectively.

BEE GLOVES.

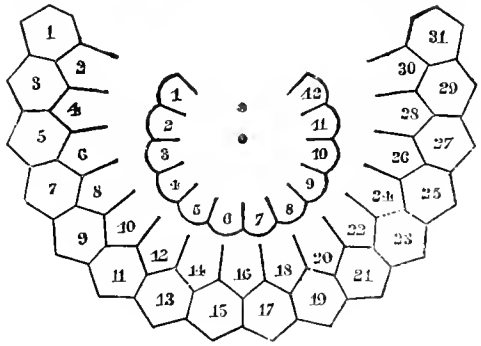
The discussion on the relative merits of india-rubber, as compared with other gloves, induced us to recommend that knitted cotton or worsted gloves, covered with gauntleted 'Berlins,' be used, and having been tried and approved, we have had a quantity of the latter made of extra length, to come about half-way up the arm, and effectually prevent bees getting 'up the sleeve.' In dealing with our Syrians the other day we found them specially useful; the bees had punished one of our juniors considerably, and driven him away to pick out the stings about his wrists, but covered with the gloves which we had dipped in water when on, not a bee touched them, except in two instances, to suck up the moisture. The gloves are little more than half the price (per double pair) of the India-rubbers, and there is the advantage that any needlewoman can repair them. In warm weather, when wetted with water, they are a real luxury as compared with those in which the hands are bathed in their own perspiration. They are the best protection we know of, the bees do not try to sting them; if they did they could scarcely sting through them, and supposing that to have happened, the poison would be diluted considerably by the water in the gloves. If they were wetted with an alkaline solution, there would be perfect immunity, for the attempt to sting would bring acid and alkali into contact, and the bee would get a serious 'blowing up' from the explosion of the generated gas. What fun it would be if the attempt to sting should thus recoil on the stinging end of the bee!

THE 'ROBBER PREVENTER.'

We regret that through the misplacement of the award card at the late South Kensington Show we were led to suppose a bronze medal had been awarded to this invention, mentioned in our last issue. The prize was awarded for our new Spring Self-fitting Division-board, and our Bee-keeper's Forget-me-nots. The robber preventer, however, is worthy of attention, and will shortly be manufactured for sale.

ABBOTT'S BEE-KEEPER'S FORGET-ME-NOTS.

These are of simple arrangement, as will be seen from the woodcut, they are printed in sheets of twelve, and will be sent out post free for fourpence per dozen sheets. The figures may be used to denote the months and the days of the month, or ¼-cwts. and lbs., and pasted on boards or in the roofs of hives will be found highly useful. The account can be kept by pressing an ordinary pin into the centre point of each semicircle and bending them down that the heads may reach the figures, when they will be moveable like the hands of a clock; or the record may be kept in pencil, or by pressing small tacks into the respective figures.

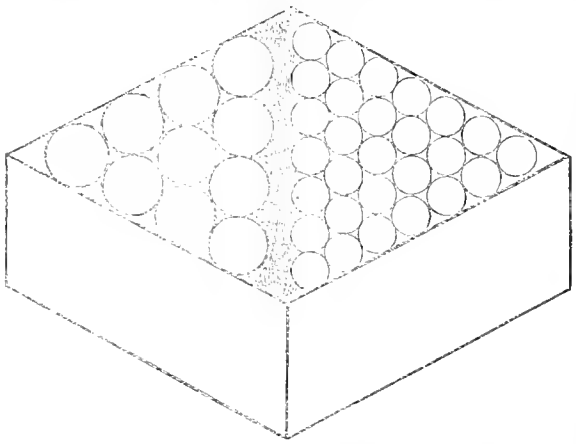


Originally we thought of printing the headings —such as Hive swarmed; Queen inserted; Queen laying; When last examined; Weight of supers, and various other memoranda; but it afterwards occurred to us that it would be better to leave the headings open that they might be written for any purpose. By pasting one of the sheets on each side of a thin board and keeping it in the roof or at the back of a hive, and by using pins as indices, and pencil as well, forty-eight or more memoranda of the hive and its belonging could be kept with very little trouble and at a very small expense.

PACKING CRATE FOR HONEY JARS.

Among the 'inventions' exhibited at the late South Kensington Show we gave our best idea for packing honey-jars to ensure, as far as it is possible to ensure where railway porters have the handling of things, their safe transit. It is well understood that round figures, packed closely, will touch each other at six points, excepting on the outside, and as 3, 6, 10, 15, 21, 28, and so on, can always be made to take the form of an equilateral triangle, we thought that would be the best shape for a box to hold a number of such figures, thus securing close fitting and economy of space. For the protection of the jars a number of small sheets of zinc are used, each of which when folded forms a cylinder or case. The jars are first wrapped in paper, the zinc is wrapped round them and tied close with a piece of string, and they are then placed in the 'crate' as indicated in the woodcut, which is of double equilateral or lozenge shape, to show how readily jars of different sizes may be set closely together by commencing at either end of it, the same-sized wraps of zinc serving for both. As shown, ten large, or twenty-eight small jars occupy nearly the same space, leaving

room between for packing of hay, or straw, or shavings to jamb all closely. This kind of crate will be found highly useful for sending honey about. It can be easily made, and is far



superior to the ordinary crate with square partitions, into which only one sized jars will fit. Wine and spirit merchants are likely to take a hint from this suggestion, economy of space being a desideratum in their lumber rooms. The zinc will, of course, be returnable with the crate, or may be flattened out and used as slates for roofing or repairs.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

We desire to draw attention to the forthcoming Show of the above Society, to be held at Louth on the 8th inst. A most liberal Prize Schedule has been offered, and we are pleased to learn that a great amount of interest has been aroused throughout the entire county, and that the exhibition at Louth promises to be the largest the Association has yet held. We hope fine weather will prevail, to enable visitors to thoroughly enjoy a day amongst the bees.

ADULTERATION OF HONEY.

At the general meeting of the Association at South Kensington, the Chairman, T. W. Cowan, Esq., brought on the question of adulteration of honey. He pointed out that at present no reliable test existed for detecting the admixture of sugar syrup, and that some honey that had been exhibited was very suspicious, but, owing to the absence of a proper test, the judges were not in a position to disqualify it. He also stated that a friend of his, a chemist at Burton, who had paid some attention to this subject, was prepared to carry on experiments; but for the purpose of finding a test in which there would be perfect confidence it would be necessary to have samples of pure honey from different localities to experiment with. Several of the gentlemen present gave Mr. Cowan samples of their honey; all these had been packed together, and forwarded. Mr. Cowan had also received several samples since the show, and he would be glad if those who are interested in this subject and are willing to assist the British Bee-keepers' Association, would oblige by sending him samples of their honey. 1-lb. sections or 1-lb. jars would suffice, and they should be labelled, stating the locality whence they came. When sufficient progress has been made, Mr. Cowan's friend has signified his willingness to read a paper on the subject, putting forth the results of his experiments. If the samples are sent to Mr. Cowan, Comptons Lea, Horsham, when there are sufficient to make up a parcel, he will forward them to their destination.

MR. COWAN'S APIARY, HORSHAM.

Having occasion during the preceding month to pass through the picturesque and peaceful town of Horsham, and finding that I had an hour or two to spare before continuing the prosecution of my journey to the watering-place to which I was bound, I availed myself of the opportunity thus offered to present myself at Comptons Lea, the residence of Thomas W. Cowan, Esq., Chairman of the British Bee-keepers' Association, with a view, if convenient, to inspect his apiary, and to gain an insight into the results of the teachings of that most reliable authority to all who take an interest in apiculture, viz., *The British Bee-keepers' Guide-Book*. It is almost needless to observe, that I received a cordial and courteous welcome at the hands of Mr. Cowan, and that he evinced the utmost readiness to gratify me in carrying out my desires. I was much pleased at finding the Rev. J. Lawson Sisson, of Edingthorpe Rectory, North Walsham, a guest for the time at Mr. Cowan's, a gentleman whose genial presence at our annual exhibitions at South Kensington is always a pleasure, and whose intelligent replies to bystanders in the manipulating tent on apicultural matters tend to give us the greatest confidence in his awards as one of the Judges of the Show.

Comptons Lea is rather more than a mile from the railway station. It stands about one hundred feet above Horsham, and adjoins St. Leonard's Forest, from which the bees derive a large quantity of honey during the autumn. The mansion is of recent erection, and the grounds surrounding it comprise about fifty acres.

The apiary is at some distance from the house, and is arranged in a continuous serpentine line, each hive being a few feet distant from the other. There were about fifteen hives, of various kinds and descriptions, all having the same-sized frames: Mr. Cowan's 'ain bairn,' the Cowan or Chaff-hive, a detailed account of which is given in his *Guide-Book* (pp. 25–30), being evidently a special favourite. I noted a Stewarton hive in full work, which bore evidence that Mr. Cowan, though not prepared to accord to it the high position among hives claimed for it by the 'Renfrewshire Bee-keeper,' was evidently perfectly acquainted with the working of that hive and system. This hive had made such good progress up to the time of my visit, that there appeared good grounds to hope that before the end of the season it would attain the altitude of the famed one portrayed in the frontispiece to the tractate of the Rev. E. Bartrum on the *Stewarton, the Hive of the Busy Man*. There were also a number of nucleus-hives, in which queens were being reared to take the place of those that had been in work for two seasons, Mr. Cowan considering it one of the great desiderata in successful bee-keeping that queens should be young and vigorous.

All the hives were in healthy condition, and the bees were accumulating large amounts of honey. In reply to an

inquiry as to what quantity of honey he expected before the end of the season, Mr. Cowan said that he thought each of his hives would produce one hundred pounds. Being aware of the uncommercial nature of Mr. Cowan, I could not help expressing some astonishment as to how he could manage to dispose of so much; his answer was that the requirements of his family (honey being in many cases substituted for sugar for cooking purposes), and the readiness of his neighbours to take some, and the sale of his exhibits at some of the shows, would absorb a large portion; and besides this, he said he was endeavouring to distil from honey some non-alcoholic drink, which, if successful, he proposed to call 'Melidome.' With my special proclivities, I was much rejoiced at this information; for doubtless, if the number of persons taking an interest in bee-keeping continue to increase, and the inflow of honey be as great as in the present year, it is very desirable that new outlets and utilities of honey should be developed; and I felt assured that a mind like Mr. Cowan's, so versatile in resources and so fertile in inventiveness, would be able to achieve the desired result. And in connexion with this remark of Mr. Cowan's, there occurred to my mind an observation of Dr. Dzierzon, who says in his *Rational Bee-keeping* (almost prophetically), 'Bee-keeping may assume still greater importance, should the attempts that are being made to check the ravages and further spread of the Phylloxera—the terror of the vine-grower—prove ineffectual, in which case the deficiency in the vintage will probably have to be supplemented by the use of wine made from honey.'*

To return. Mr. Cowan was kind enough to open several of his hives, and in doing so he evidently was, as might have been expected, perfectly equal to the occasion, and was plainly entitled to be styled, in the full sense of the word, a bee-master. He quite ignored the use of the bee-veil. His hives had no distance-tacks or frames of the Abbott type; but by a deftness of feel and an educated eye, he seemed to arrive at the proper distances to be maintained between the frames. In fixing comb-foundation, Mr. Cheshire's ingenious foundation-pins were adopted throughout his apiary.

After examining the hives, I was taken to an outhouse in which were preserved a variety of old hives and obsolete bee appliances. There was an Italian Smielatore, a German Bogenstülper, an ancient Hruschka honey-slinger, and a miscellaneous assortment of home and foreign productions. '*Fuerunt*' might have been inscribed on all of them; yet were not these the 'footprints' by the aid of which the modern apiculturist had reached the respective hill-tops he had now gained?

There was evidence on all sides that Mr. Cowan had made ample provision for forage for his bees. The *Nepeta cataria* (Catmint) is a great favourite with Mr. Cowan; he considers it one of the best flowers for bees: it is grown in large masses here. I regretted that my visit was not made at a more favourable season of the year, when I might have seen the bee-plants in the height of their beauty. The summer flowers were passing away—the Simpson and the borage were on the wane—the New Zealand flax had not been a success; but about an acre of ground had been sown with buckwheat, and half-an-acre with mustard, the produce of which, together with the heather from the neighbouring forest, would bring the bee season at Horsham to a termination.

Mr. Cowan had recently been busy with his extractor, his 'Amateur' being his favourite machine. I essayed to raise the can in which the honey had been drawn, but I was unable to move it.

In passing through one of the rooms of the house, I noted that there were many packages of honey ready to be despatched to their various destinations. One large crate, full of sectional honey, bore the direction, 'Princess Christian, from the British Bee-keepers' Association;' perhaps I may not be justified in mentioning this so publicly—Mr. Cowan may 'blush to find it fame,'—yet the knowledge of this act will, I feel assured, not tend to diminish the respect we all have towards the Chairman of our Bee-keepers' Association.

Mr. Cowan has devoted an apartment in his house to a geological museum—one of the largest private museums of the kind in the county. He was desirous that I should see this, as the collection had been brought together almost entirely by his individual research and energy. I would willingly have spent hours in mastering its contents, especially under the guidance of its worthy originator, but I was obliged to bestow on it only a hurried glance. Tide and railway time wait for no man. Well pleased with this episode in my journey, and with feelings of gratitude towards my courteous host for his kindness, I wended my onward way.—G. Henderson, *Ealing*.

* *Apropos* to the above observation of Dr. Dzierzon, published in 1878, I append an extract from the *Daily News* of August 15th, 1881:—'The great falling off in the vintages in France in recent years, and the consequent high price of wines, appears to have led to an extensive system of manufacturing wine from dried raisins, the imports of which have in consequence considerably more than doubled during the last three years. It is calculated that 220 lbs. of raisins produce sixty-six gallons of wine, called by courtesy claret or burgundy, at which rate the total quantity now annually imported would suffice to produce forty millions of gallons. The vintage in France last year is estimated by our Vice-Consul at La Rochelle at 653 millions of gallons, which, though more than one-sixth in excess of that of the previous year, was not much more that one-half the average of the last ten years. It is reckoned that the vineyards in which the vines have been totally destroyed by the Phylloxera amount to more than 1¼ millions of English acres, and that more than an equal extent is infected, though resisting the attack.'—If dried raisins, Dr. Dzierzon would ask, Why not honey?

BEES IN A BARREL:—HOW TO GET THEM OUT OF IT?

In the *Dover Standard* of July 16 is an account of a swarm of hybrid bees having taken possession of a beer-barrel, and in the issue of the following week a correspondent said they were two swarms together. 'Every inducement' had been made to induce the bees to leave the barrel, a fact on which the said correspondent sagely dilates. He says, 'Perhaps it may be well to state that the only effectual inducement would have been to have removed the queen-bee, when the remainder of the large swarm would have speedily followed.' The writer deplores that so 'little is known of the natural history and habits of the bee;' but he fails to point out how the queen is to be got at and removed; and seeing that they are only approachable by the bung-hole, the rustics may well be excused if they leave them alone.

CALEDONIAN APIARIAN SOCIETY.

The annual show, now become an institution amongst Scottish bee-keepers, was held this year at Stirling, in conjunction with the Highland and Agricultural Society. Not since the formation of the Society had the Hon. Secretary been so much perplexed regarding the success of the show, when it is remembered that both in June and July there was hardly a day without rain. Bees had to be fed in most districts instead of laying up stores; and from Ayrshire, Dumfriesshire, and Perthshire, alone came honey entries, the result being we had less honey on the table than at any former show since our formation; but for the display of five magnificent Stewarton

boxes the honey show would have been a failure. Mr. Young, of Perth, contributed two dozen splendid 2-lb. sections, and Mr. Thomson, of Dalbeattie, two dozen 1-lb. sections, which showed the skill of their management in such a wretched season; but as yet Stewarton hives have no rivals in Ayrshire, and it will be hard to make the able managers of them in a year like the present believe in anything else.

Notwithstanding the honey failure the Caledonian Apiarian Society have still a backbone and many members of indomitable pluck, and their and other entries soon made up a goodly show, and caused as much interest amongst spectators as ever. Woods, Sword, Johnstone, Young, Peacock, and Muir, all showed observatory hives stocked with bees. Mr. Wood, Benmore, was unanimously and deservedly placed first, gaining the Highland and Agricultural Society's medal. This hive showed a marked advance on all previous endeavours by the same gentleman, which have been many and always showing marked advancement: it shows clearly the whole of the operations of bee-life, is exceedingly simple in construction, elegant in appearance, folds into very small compass, is free from all objectionable tunnels, and thoroughly comfortable for the bees. They will live and thrive in it all the year round. Mr. Young, of Perth, came second with a well-stocked unicomb hive, and Mr. Peacock, of Stirling, third, with a Bryce-Wilson's hive of imposing appearance, which took second at Kilburn, but is now discarded by all after seeing Wood's.

In the second Class, where the bees were the object, and not the hives, Mr. Johnstone, Touch, won the medal presented by the British Bee-keepers' Association, and Mr. Sword, of Falkirk, was second. In bar-frame hives Mr. Wood again comes to the front with one of the most complete at the money ever offered to the public: he calls it 'Premier.'* In it every necessity of bee-life seems to have been considered, and arrangements made for the storing and harvesting about 140 lbs. of honey in the gentlest, most efficient, and cheapest manner. Mr. Johnstone was second with a useful and cheap hive for cottagers. In the class for amateurs Mr. Wood stands first with the 'Baillie,' a cheaper hive than the 'Premier;' but very well arranged. Mr. Peacock, Stirling, took the first and second for stocked hives. Mr. Wood first, Mr. Edwards second, for new inventions, in which we have another new feeder and smoker, the latter is a real boon to bee-keepers in general, and to non-smokers in particular. Mr. Johnstone was first for comb foundation, and Mr. J. Kinnear, of Dundee, second.

In wax-cake samples Mr. Johnstone was first and second, Mr. Kinnear, Dundee, third. In honey, two Stewarton boxes over 20 lbs., Robert Anderson, Stevenston; for best super above 20 lbs., William Anderson, Stevenston; for the best twelve 2-lb. sections, Mr. Young, Perth; for the best 1-lb. sections, John Thomson, 102 High Street, Dalbeattie; for the best cakes made with honey, Mr. Sword first, Mr. Wood second; for best liqueur, Mr. Wood first; for the best collection of hives and bee-furniture, W. W. Young, Perth first; for the cheapest, neatest, and best supers, Mr. Kinnear first, Mr. Young second; for the best honey extractor, Mr. Young, with Cowan's invention. The driving competition was the great source of attraction, and there were no less than twenty competitors, the largest number that have ever come forward; two ladies being included in the number. The time varied for catching the queen from 1½ minutes to 14 minutes. The Highland Society's medal was won by Mr. Young; Miss Stewart, Stirling, second; and Mr. Raitt, Blairgowrie, third. The drawings for the four days amounted to the large sum of 43*l.* 15*s.*, thus financially the show was a great success, and puts the society on a firm basis. On Thursday evening fourteen of the members sat down to dinner in M'Alpine's hotel. After a sumptuous repast, and the usual loyal and patriotic toasts, Mr. Anderson, of Dalry, recounted his experience of bee-keeping during the last fifty years, and the strides it had made during the last ten years; but on no year did he look back with more pride to what Scotland had done than in the opening year of the Crystal Palace Show, when he and his friends, Sword and Ferguson, took up over forty fine Stewarton boxes not any globes on, and he never can forget, after it was all staged, Mr. Hooker's exclamation, 'Scotland has it all its own way.' A most enjoyable evening was spent in songs and sentiment; and as next year's show takes place in Glasgow it is expected to be the finest we have ever yet had. 'The Lanarkshire Bee-keeper' was conspicuous by his absence; but Mr. Bennett displayed one of his hives.

* It is thoroughly elastic, being perfect at any and every size to its full capacity, and so arranged as never to allow any unnecessary dispersion of heat. Several novel devices are shown.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Honey Fair will be held at Grantham on Saturday, September 17. Exhibitors at the Louth Show may, on noting their wish to the Hon. Secretary, have their honey exhibits forwarded to Grantham for the Fair after the close of the exhibition at Louth.—R. R. Godfrey, *Hon. Sec., Grantham.*

BEES AT BARNSTAPLE, NORTH DEVON.

Bee-keeping is forcing its way upon public attention and enlarging its sphere in a most satisfactory way. At the Dog and Poultry show at the above locality, honey was a conspicuous object, the collection being exceedingly good, and several prizes were awarded. In Class I. the first honours went to Mr. R. R. Sanders, of Bishop's Tawton, who showed an excellent lot of honey, but Mr. Strong's (second prize) was heavier, but a little discoloured at one end. It weighed 40 lbs. Comb honey in sections was a good lot, and highly spoken of by the judge. The collection of comb honey (by cottagers) was also extremely good, as was also the run or extracted honey, the first honours going to the winner for the clearness and mild flavour of his exhibit. The show of bees-wax was moderate, the first prize cake being far ahead of the rest. Rev. J. A. Kempe showed a lot of good extracted honey, not for competition, which was much admired.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION SHOW.

(From the Belfast News Letter.)

The first great Annual Exhibition of the County Armagh Bee-keepers' Association, held on Saturday, August 20th, in Lord Lurgan's demesne, by kind permission of his Lordship, was attended with surprising success. The career of the Association since its institution in March of the present year has been a brilliant one, and now that the difficulties of the first show have been overcome, it would be impossible to predict for the Society anything but a prosperous future. The objects which the Association have in view require no commendation. A very few years back saw bees regarded by a great number as a most persistent and useless class of farm and garden intruders, and the reason they escaped total banishment long ago was perhaps the difficulty that would have been experienced in effecting their extermination. They were merely tolerated, no care or attention being given to them except that which was necessary to terminate their existence when their honey-combs were full. Within the past year, however, the condition of the industrious little insect has greatly changed, and bee-keeping is now looked on as an interesting, as well as a profitable, pursuit. Farmers now understand that the

presence of bees in the garden has a good effect on flowers and plants, and the part that they play in the fertilising of plants by the carrying of pollen from one blossom to another is now well known to them. Improvements have also been lately made in the construction of hives, by the use of which not only can superior honey be obtained, but the honey can be had without the necessity of destroying the insect. Such a degree of nicety has been arrived at in the perforation of zinc that the drones can be kept out of the 'supers,' and honey of extreme purity and greater quantity is the result. Traps, by which the drones can be captured at pleasure, have also come greatly into use, thus anticipating their destruction by the workers. All the modern apiarian appliances point to the ultimate disappearance of the antiquated straw-skep, and by to-day's show the utility of making use of wooden hives was clearly demonstrated. It has been urged on behalf of the old cone-shaped hives that they most closely resemble the hollow trunk of a tree, the natural home of the bee, but it must be remembered that the difference between a scientifically constructed wooden box and the trunk of a tree is very slight, and exists only in shape. But the fact that by the use of wooden hives the lives of the bees can be preserved must surely weigh considerably in their favour. No doubt the bees may be successfully driven from one old straw hive to another by fumigation, but it has been found that before leaving the hive the bees gorge themselves and greatly diminish the stock of honey in the combs. Some highly interesting experiments in bee-driving and quieting took place during the day in the driving-tent of the Association, by the arrangement of which visitors were protected from the bees. Owing to the inclemency of the weather, however, they were only partly successful. In their manipulation of the bees, Rev. Mr. Lett, Mr. Lonsdale, and Mr. Hill seemed to bear a charmed existence, or, rather, an impenetrable skin. In the large marquee devoted to the exhibits there was shown a large 'extractor' for emptying the combs of honey without the old heating process having to be gone through. The machine is lent to members of the Association as they require it. Rev. Mr. Lett exhibited two wooden frame hives, the cost of construction of each being 1*s.* 6½*d.* During the day these were generally admired, and their construction looked into. For the purpose of lining boxes Mr. Lett also exhibited some excellent packing peat moss. He also presented a special prize to Miss Florence Palmer, of Roseboro', Newtownhamilton, for some highly interesting dried specimens of flowers from which bees cull honey. The stock of apiarian appliances of Messrs. A. Donnelly & Co., Lurgan, was very large. Mr. G. Greer's hive of Ligurian bees attracted considerable attention; and the observatory hives, for which Mr. Robert Brown and Mr. William Allan obtained first and second prizes respectively in Class 2, were much admired, and the working of the bees closely watched. Mr. Lonsdale's 'Ardmore' hives—the name being an acknowledgment to Rev. Mr. Lett, Ardmore Glebe, from whom the pattern was obtained, were scrutinised with interest. The judges were Messrs. C. C. Russell, Newtownards, and R. Nevin, Crombe Hill, Lambeg. This Report would be incomplete without a reference to the courteous and energetic manner in which the hon. secretaries (Mr. George Greer and the Rev. H. W. Lett) performed their duties. In fact, to their industry the County Armagh Bee-keepers' Association owes much of its present position. The following was the prize list:—

Class 1 (open).—For the best stock or specimen of Ligurian bees, to be exhibited with the queen in an observatory hive. No entries. *Class* 2 (open to subscribers, residents in the County Armagh, and members of the Irish Bee-keepers' Association).—For the best stock or specimen of English bees, to be exhibited with the queen in an observatory hive.—1. Robert Brown, Donaghmore; 2. Wm. Allen, Brownlow Gardens, Lurgan. *Class* 3 (open to subscribers and residents in County Armagh).—For the best straw skep of bees not being a swarm of this year.—1. Robert Hewitt, Aughacommon, Lurgan; 2. Same; 3. Wm. Abraham, Derryadd, Lurgan (Prize: a bar-frame hive, presented by Rev. H. W. Lett, hon. sec.); 4. Wm. Ager, Lurgan; 5. Joseph M'Geown, Lurgan. *Class* 3 (additional prize, open to subscribers and residents in County Armagh).—For the best swarm of bees, being a swarm of this year.—Robert Hewitt, Aughacommon. (Prize: a bar-frame hive, complete with cover and roof, presented by Rev. H. W. Lett.) *Class* 4 (open to subscribers and residents in County Armagh).—For the largest and best super of honey the produce of one hive.—1. G. Greer, Dungannon; 2. Robert Brown, Donaghmore. *Class* 5 (open).—For the best exhibition of pure honey in sectional supers, separable, in sections of not more than 2 lbs. weight.—1. Wm. Allen, Brownlow Gardens, Lurgan; 2. Rev. H. W. Lett, Ardmore Glebe, Lurgan. *Class* 6 (open to subscribers and residents in County Armagh).—For the best exhibition of honey in the comb taken from one hive without destroying the bees.—Mr. Joseph M'Geown, Lurgan. *Class* 7 (open).—For the best exhibition of pure extracted honey in glass jars, not to exceed 2 lbs. in each jar.—1. John Glenny, 87 Canal Street, Newry; 2. Wm. Allan, Brownlow Gardens, Lurgan. *Class* 8 (open).—For the best and cheapest hives on the moveable comb principle.—1. Wm. Lonsdale, Lurgan; 2. Same. *Class* 9 (open).—For the best and cheapest complete bar-frame hive, price not to exceed 7*s.*—1. Wm. Lonsdale, Lurgan; 2. Same. *Class* 10 (open). For the cheapest practically useful bar-frame hive made by a carpenter resident in Armagh, price not to exceed 4*s.*—1. Wm. Lonsdale, Lurgan; 2. Same. *Class* 11.—For the best bar-frame hive made by any subscriber to the County Armagh Bee-keepers' Association not a carpenter.—1. Rev. H. W. Lett, Ardmore Glebe; 2. Same.

On the 23rd August the Fourth Annual Meeting of the Narrow Water (near Newry, Co. Down) Gardening Society was held, at which there was an exhibition of hives and bees. The County Armagh Tent was present, and the Show was in a great measure a repetition of the Armagh Show. The Lord Mayor of London was present at one of the manipulations, and expressed himself most highly pleased.

HERTFORDSHIRE BEE ASSOCIATION.

On Wednesday and Thursday, 10th and 11th ult., the Annual Herts County Horticultural Show, and the Annual Show of the Herts Bee-keepers' Association, took place at Gorhambury Lodge, St. Michael's (by kind permission of the Earl of Verulam and Mr. R. Aldridge). The weather, an all-important desideratum to ensure success to gatherings of this description, was unfavourable, being dull and cloudy, with occasional showers of rain on both days. At the opening of the Show on Wednesday especially the weather was against the venture, heavy showers of rain preventing an early visit to the Show ground. On Thursday the attendance was not very large, and at five o'clock on that day the total number passed through the barriers was under 1900. Last year, in the two days, over 3000 people visited the Show. The show of bees, honey, and bee-furniture, was good, and consisted of forty-nine exhibits, one being a portable extractor by Mr. J. H. Godman, St. Albans, in which several new features were observable. This was really the only new thing in the Show, and gained a first prize in its department. The tent of the Herts Bee-keepers' Association was present, where Mr. Blow, the Society's expert, gave practical illustrations in modern bee-management, and Mr. A. Lewis, of St. Albans, exhibited the process of bee-driving.

On Thursday the Bee Prizes were distributed by the Earl of Verulam (who was accompanied by Lady Jane

Grimston). The Judges were:—Mr. J. M. Hooker, Sevenoaks; Mr. T. W. Cowan, Horsham; the Rev. E. Bartrum, Great Berkhamsted; the Rev. H. J. Wilcox, Nettleden; and Mr. H. C. Finch, Red Heath, Watford. The following is a list of the prizes:—(Classes open to members of the Herdfordshire Association only, residing in the county.) Best and most complete hive, on the moveable-comb principle, to include covering, stand, and floor-board, and arrangements for supering—20*s.*, J. Chapman, Knebworth. Best and most complete hive for cottager's use, to include cover, floor-board, and arrangements for supering; selling price not to exceed half-a-sovereign—20*s.*, H. Brinkman, St. Albans. HONEY.—Best twenty 2-lb. sections of comb honey—1st, silver medal and 15*s.*, J. S. Brooks, Barnet; 2nd, bronze medal and 10*s.*, Miss Gayton, Great Hadham. Best ten 2-lb. sections of comb honey—1st, 20*s.*, Miss Gayton, Great Hadham; 2nd, 10*s.*, Rev. F. G. Jenyns, Knebworth; 4th, 2*s.* 6*d.*, Miss Debenham, St. Albans. Best ten 1-lb. sections of comb honey—1st and 2nd, 30*s.*, E. Matthews, Royston; 3rd, 5*s.*, A. Lewis, St. Albans; 4th, 2*s.* 6*d.*, Rev. W. T. Drake, Great Gaddesden. Best super of honey, not being sectional supers—1st, 15*s.*, F. Moules, Stevenage; 2nd, 10*s.*, Rev. F. G. Jenyns, Knebworth; 3rd, 5*s.*, H. J. Humphrey, Harpenden. Best exhibition of run or extracted honey, in eighteen 2-lb. jars—1st, 15*s.*, Miss Gayton, Great Hadham; 2nd, 10*s.*, A. Lewis, St. Albans; 3rd, 7*s.* 6*d.*, H. G. Roberts, Gosmore, Hitchin. (For cottagers only, being members of the Hertfordshire Bee-keepers' Association.)—Best exhibition of honey in the comb—1st and 2nd, 17*s.* 6*d.*, J. Chapman, Knebworth; 3rd, 5*s.*, J. Matthews, Hudnall. Best exhibition of run or extracted honey in twelve jars—1st, 10*s.*, J. Matthews, Hudnall. MISCELLANEOUS.—Finest sample of bees-wax, obtained from combs made by the exhibitor's own bees—1st, 7*s.* 6*d.*, J. S. Brooks, Barnet; 2nd, 5*s.*, A. Sharp, Gorhambury. Driving, in the neatest, quickest, and most complete manner, bees from one hive to another—1st, 20*s.*, W. Childs, Leverstock Green; 2nd, 15*s.*, A. Lewis; 3rd, 10*s.*, H. Humphrey. (Classes open to All England.)—Best stock of bees, of any race—1st, 40*s.*, G. N. Marten, St. Albans; 2nd, 20*s.*, G. Neighbour and Son, London; 3rd, 10*s.*, A. Lewis. Best honey-extractor—1st, 20*s.*, J. H. Godman, Dalton Street, St. Albans. Best bee-feeder—1st, 10*s.*, Abbott Brothers, Southall. Best and most complete collection of hives and bee-furniture—1st, 40*s.*, Neighbour and Son.

BEE TENT AT LISMORE.

Seeing in the *British Bee Journal* for July that Mr. Traynor was to manage a Bee Tent at the Society's Show on the 1st and 2nd of August, I volunteered my services; and I now send an account of our doings.

Mr. Traynor arrived in Waterford from Tinahely on Friday evening, and we started for Lismore on Saturday morning, so as to get everything ready for Monday. On proceeding to the ground we found we had very little to do, thanks to the Secretary, as the splendid tent which was lent for the occasion had been erected in a capital position, so that, except to arrange for two hives, which had been engaged to be brought up for Monday's operations, we did nothing till Monday morning, when, with the ready help which we received, we had soon everything complete.

Monday was the day of the Horse Show, and though this was of absorbing interest, the Bee Tent did not lack patronage.

The hives which were allotted to us by the man from whom they were borrowed, were not exactly those suited for exhibition driving and queen-catching, one having attached to it as many as five risers.

An idea of the ignorance which prevails connected with everything relating to bees may be gained from an argument which had taken place between the man who lent the bees and another, one asserting that drone bees were those which had lost their stings.

The visitors to the Tent were much more numerous on Tuesday, the day of the Cattle Show. The manipulations were those usually performed, viz.: driving from straw-skeps, queen-catching, extracting, &c.; and, judging by the keen interest taken and the many questions asked, those already keeping bees have had fresh impulse given them, and many will abandon the straw-skep and brimstone-pit. Mr. Traynor has arranged for an Exhibition at Enniscorthy on September 13th, Gorey 22nd; and I hope to arrange for him to have an exhibition in connexion with the Waterford Farming Society's Show on September 15th.—FRANCIS JONES, *Mullinabro, Waterford.*

HONEY, HIVE, AND BEE SHOW AT TORQUAY.

Under the management and patronage of the Devon and Exeter Bee-keepers' Association, a highly interesting two days' Honey, Hive, and Bee Show, and Honey Fair, was opened on the 11th ult. in the Winter Garden, Torquay, by the President, W. Horton Ellis, Esq., J.P., of Hartwell House, Exeter. The exhibition consisted of twenty-one classes, which included hives, honey, bees-wax, bees, comb foundations, and miscellaneous apparatus, in addition to which there was a fair for the sale of honey. There were upwards of 100 entries by twenty-seven exhibitors. In the five classes devoted to honey there was to be seen the usual mode of producing the honey in sections with supers, showing that straw hives are no longer used to any great extent in the scientific manipulation of bees, having been superseded of late by bar-frames, which in their turn have been much improved upon. For the prizes offered—including cups, the medals of the British Bee-keepers' Association, and special prizes to cottagers—there was a very satisfactory amount of competition, and the Devon and Exeter Association are to be congratulated on the success attending their Show at Torquay.

Concerning the awards, the first prize and silver medal for the best exhibition of comb honey in sections, each separable, and not more than three pounds in weight, was awarded to Mr. W. N. Griffin, of Alphington, Exeter, one of the Hon. Secretaries of the Association. Mr. Griffin also carried off first honours with his improved 'Griffin Hive,' for the most perfect bar-frame hive with covering and stand, as well as two other first prizes—one for his crate for the carriage of sections by rail or otherwise, and the other, for his queen-cage, for transmission of queen-bees by post. Mr. Griffin was, too, one of the largest exhibitors of comb honey and honey in glasses. The first prize and bronze medal for the best dozen jars of run or extracted honey went to the Rev. J. A. Kempe, of Lew Down; Mr. J. W. Walter, Radford Cottage, Dawlish, taking second honours in this class. Mr. G. M. Walsh, of Rockbeare Court, Exeter, and Miss Symons, of Hatt, Cornwall, were awarded the first and second prizes respectively for the largest and best harvest of comb honey from one stock. Mr. Walsh is also first for the best super of comb honey and for the best sample of bees-wax in cakes of not less than one pound each, produced by the exhibitor's own bees, the Rev. J. A. Kempe being second in the latter class. Mr. S. J. Baldwin, Bromley, Kent, was awarded first prize for the best observatory hive stocked with combs, bees, and their queen in proper working order, Messrs. Neighbour and Sons (London) and Abbott Brothers (Middlesex) being second and third in this, one of the most attractive features of the exhibition. Messrs. Abbott also came second, and Messrs. Neighbour third, in the competition for bar-framed hives; and these firms stand first and second for the best sample of comb foundation made of pure bees-wax

not less than three pounds in weight each kind. Messrs. Abbott and Messrs. Neighbour occupy too the same relative positions for the best and most complete wood or straw hive on the moveable comb principle, suitable for cottagers. To Messrs. Neighbour were also awarded first prizes for the best and largest collection of hives, bee furniture, and apiculturists' necessaries, and for the best honey extractor; Messrs. Abbott being second in the last-named class, and third for the collection of hives and furniture; Mr. Baldwin taking second prize. Mrs. Dickinson, of Broomhill, Tiverton, took the second prize for the best super of comb honey; and Mr. W. R. Fox, Colyton, second for the best eight sections of comb honey, in which class Mr. James Hamlyn, of Bossell Park, Buckfastleigh, was commended. Mr. Hamlyn was more successful in another class, taking the first prize for the cheapest and best super, on the sectional principle, for general use in an apiary; Messrs. Abbott coming second. In the Cottagers' classes, the prize for the largest and best exhibition of comb honey from one stock, without destroying the bees, was awarded, with high commendation, to W. Pickings, of Colebrook, Copplestone; and the same exhibitor carried off the first prize in the next class for the best super of comb honey; William Toms, of Aveton Gifford, coming second, and also being commended. The only prize given for the best bee-feeder goes to Messrs. Abbott, out of five exhibitors. The first prize for the best straw hive for depriving purposes went very deservedly to J. Wilcox, a blind exhibitor, of Tiverton; L. Waldron, of Kenn, being second. The gentlemen who acted as judges were the Rev. Dr. Bennett, Ashton Rectory; W. H. Ellis, Esq., Exeter; Admiral Moorman, Exmouth; Mr. S. Baldwin, Kent; Rev. J. Bartlett, Topsham; Rev. J. Dickinson, Tiverton; and J. Thacker, Esq., Heathlands, Ottery St. Mary.

Among those who sent very fine exhibits of comb honey, not for competition, were Messrs. Slade and Sons, and Messrs. Shapley and Austin, two of the principal grocery firms in Torquay. During the afternoon, exhibitions of a most interesting character were made in a tent on the grounds with living bees. The prizes awarded to the successful exhibitors were distributed by Lady Kathrine Buchanan at four o'clock, before and after which selections of music were performed by the Winter Garden Company's orchestral band. At eight o'clock short and entertaining lectures on 'Bees and Bee-keeping' were delivered by Mr. Griffin and his energetic and courteous co-secretary, the Rev. J. G. Dangar, M.A., Principal of the Exeter Training College. The exhibition remained open up to late on the evening of the 12th.—From the *Exeter and Plymouth Gazette*.

BEE SHOW AT RUSHINGTON, SOUTH LINCOLNSHIRE.

At the Rushington Flower Show in July, in addition to a general Industrial Exhibition, there was a Bee Show under the management of R. R. Godfrey, Esq., of Grantham, the Hon. Sec. of the Lincolnshire Bee-keepers' Association, who superintended and explained the whole business, aided by diagrams and practical illustrations. There were driving and transferring, which, as is usual, created great excitement. Mr. Robert Thorpe added to the interest by a most instructive exhibition of useful appliances, and afforded most welcome assistance.

BERKS AND BUCKS COUNTY SHOW AT MAIDENHEAD.

The second annual County Show of this flourishing Association, numbering over 120 members, took place in the beautiful grounds of Kidswell Park, in conjunction with the Maidenhead Horticultural Society's Flower Show, on Thursday the 18th ult. The flowers, fruit, and vegetables, were all that could be desired, a delightful show in themselves; but the honey and the bees were the chief attraction, retaining the visitors for hours, spell-bound as it were by the wonder-working bees, and the great beauty and worth of their productions. The weather being exceedingly fine it was hoped that Her Royal Highness Princess Christian, the Patroness of the Bee-keepers' Association, would honour the exhibition by her presence; but the heavy rain of the previous day caused other engagements that could not be broken, and the hope was not fulfilled. The show of honey was all that could be desired; but during the day great havoc was made among the unprotected exhibits by the invasion of bees from neighbouring apiaries. The cream of the show was exhibited by Sir Gilbert A. Clayton East, Bart., the President of the Association, whose numerous specimens were of great beauty, the gem of the collection being an exhibit of thirty 2-lb. sections with glass bottoms (Abbott's original) the honey in each case being worked down to, and showing deliciously through the glass. The comb, by the careful use of dividers, was perfectly flat, and symmetrical, and being neatly glazed, the exhibit was 'a picture.' Sir Gilbert carried off the highest honours of the show, the silver and bronze medals, and the certificate of the British Bee-keepers' Association, and sundry money prizes. A very pleasant feature connected with the show lay in the fact that Sir Gilbert had generously offered the whole of his honey on sale, the proceeds to be devoted to charitable purposes, conditions under which it doubtlessly found ready purchasers.

In the local classes, for the best observatory hive Messrs. W. Martin and G. P. Cartland were considered equal, the former showing a unicomb hive, the latter a moveable comb glass observatory. For the best moveable comb cottager's hive Mr. R. Trotter, of Eton Wick, took the prize with a well-made little hive price 10s. 6d. For the best sectional super of comb honey, Sir G. A. C. East took the silver medal, Mr. H. R. Burrows being second, and Mrs. Roberts third; Maidenhead thus taking the whole. For the best display of comb honey in sections, Sir Gilbert was again first, taking the bronze medal; Mr. J. K. Filbee, of High Wycombe, second, and Mr. H. J. Mount, of Maidenhead, third. For the best exhibition of comb honey Sir Gilbert A. East was again to the fore, taking first prize and certificate. Mr. H. R. Burrows, of Maidenhead, being second. For the largest and best display of run or extracted honey, Sir Gilbert was in his usual place, Mr. L. Harris, of High Wycombe, being second. For the best sample of wax Mr. W. Carter and Mr. W. Martin, both of Wycombe, won first and second. In the open classes Messrs. Neighbour and Abbott Bros. were first and second. For the best moveable comb hive Abbott Bros. were first and Messrs. Neighbour second, Mr. S. J. Baldwin commended. For the best Cottager's hive, Abbott Bros. were first, Mr. Baldwin second. For the best collection of hives, &c., Abbott Bros. and Messrs. Neighbour were first and second respectively. For the best display of comb honey Mr. W. S. Darby of Windsor first, Colonel Fitzroy Clayton being next. For the best exhibition of super honey, Mr. W. Carter, of Clewer, was first, and Mr. W. Martin second. For the largest and best exhibition of run or extracted honey, Mr. Cartland, of Windsor, and Mr. W. Carter, were first and second. In the driving competition there were four competitors, Mr. Baldwin first, capturing the queen in 4½ minutes, and completing the driving in five, Messrs. Harris and Filbee each captured the queen in 5½ minutes, Mr. W. Martin completed his work in 4¾ minutes; but not having captured the queen as she went up was awarded second prize. The immense success of the show was due to the untiring energy of the Hon. Secs., Messrs. Cartland and Darby, who were assisted by the Committee, of whom the Rev. J. R. Wilkinson, W. H. Harris, Esq.,

and Mr. W. Carter, were conspicuously active. Their labours were much increased by the neglect of the exhibitors to protect their honey from incursive bees. Foragers from the neighbourhood found it out, and having tasted it carried the news to their friends, and ere it could be covered with matting or canvas they had fairly taken possession of the tent; not less than fourteen to fifteen pounds of bees being engaged, marauding and making a din with their humming that almost drowned the music of the Grenadier Guards' Band.

The bees, however, did not deter the visitors, who, finding they were harmless, rather enjoyed the novel position and spectacle; but the exhibitors, who brought full supers and carried home only vessels of empty comb, and in some instances very little of that, did not so well appreciate the joke, many pounds of honey having been carried away, and a very large number of sections spoiled. In the Bee-Tent Mr. Baldwin was active as usual, making converts to the improved system of bee-culture, the interest being kept up by him till the shades of evening put an end to his labours.

SURREY BEE-KEEPERS' ASSOCIATION.

This Association were, on July 21st, by invitation, present with their Bee Tent at the Cottagers' Garden Show, held in the 'Founder's Court,' at the Charter House, Godalming. There were prizes offered for bee-driving, hives of bees, and honey, for cottagers only, and as a first attempt to keep it exclusively to them, was tolerably responded to, each class finding an exhibitor. Mr. Jas. Abbott, of Southall, was the expert engaged by the Association, who fulfilled his allotted task with his usual unvarying ability. Mr. Hollands, of Croydon, exhibited and supplied articles connected with bee-culture. There was a goodly display of honey.

The Association are also invited by one of their Vice-Presidents in the same neighbourhood to give a practical exhibition of bee-management to some cottage bee-keepers on his estate on the 30th inst. These opportunities to the Association to assist cottagers are very much esteemed, and good results are anticipated.

The Association will hold its third Annual Exhibition of honey, bees, hives, and appliances, practical apiarian manipulations, and honey fair, by the kind permission of Henry Parson, Esq., in the grounds at 'The Firs,' Guildford, on Wednesday, the 14th of September, 1881. The committee offer prizes at this show principally for the encouragement of cottage bee-keepers, that being the primary object of the Association. At the same time they invite exhibits from all who will kindly support their efforts to form a valuable and interesting exhibition. There are no open prizes. Full particulars may be obtained of F. H. Lemare, Esq., Hon. Sec., 4 Sydney Terrace, Guildford.

BEE SHOW AT OTTERY, ST. MARY'S, DEVON.

The Flower Show Committee of this place added bees and honey to their list of attractions at their late Show, and a goodly array of supers, sectional and otherwise, was staged; but the exhibition was marred by the carelessness of those who brought their honey unprotected by glass or gauze, the neighbouring bees coming in force and taking possession of the honey before the visitors could see it. The invasion was attributed to some supers having been taken that morning from hives near by and brought to the Show, the bees being credited with having followed them. This impression is an injurious one, and will fortify careless bee-keepers in their prejudice in favour of destroying bees when taking their honey, and will tend to prevent the adoption of the supering system, the idea being, that when supers are removed, the bees issue forth in search of it, and, not finding it, attack other hives.

Had the honey been properly protected, a few bees might have been attracted by its odour, but, finding it impossible to get it, would soon have left the tent; but having tasted the treasure, they would soon communicate the intelligence of its discovery to their friends, and, as is perfectly natural, the scene would be immediately visited by thousands. Bees soon find out when they can and when they cannot find access, and be the odour ever so strong, in the latter case they quickly desist from the search.

BEES AT WANTAGE, BERKS.

With a view to the encouragement and improvement of bee-culture, bettering the condition of cottagers, and adding to their home attractions, the Wantage Horticultural Society arranged with the Berks and Bucks Bee Association for an exhibition at the Wantage Show on the 25th ult.

The arrangements were perfect, but the weather was most miserable, wind and a downpour of rain continuing during the whole of the day. The attendance was consequently small. W. Marlow, Esq., of The Bank, Wantage, exhibited a glass super of 52 lbs., which was the gem of the Show. Messrs. Abbott Bros. attended (by request) with a few exhibits, not in competition, and explained the nature of the modern system to the limited audience.

BEE SHOW AND MANIPULATION IN AMERICA.

In the Premium List (Prize Schedule) of the St. Joseph inter-state Exposition, third Annual Exposition and Fair, to be opened at St. Joseph, Mo., on Monday, Sept. 5 inst., there will be an exhibition of manipulation, the first, as we believe, of which public notice has been given. Prizes are offered for the 'Exhibition of a Swarm of Bees in Hive, including their Handling, and Best Method of Subjugation,' to be practically illustrated on Friday, Sep. 9. Were Artemus Ward living, he would say, 'They're moving onwards' over there.

SHOWS AND BEE TENT ENGAGEMENTS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Sept. 7.—Ringmer Horticultural Show.
Sept. 8.—Lincolnshire Show at Louth.
Sept. 14.—Surrey Show at Guildford.
Sept. 15, 16, 17, 19, 20.—Dairy Show at Agricultural Hall, Islington.
Sept. 15.—Slindon Horticultural Show.

ESSEX BEE-KEEPERS' ASSOCIATION.

Sept. 7.—At Colchester.
Sept. 15.—At Brentwood; also an Exhibition of Hives, &c., and Honey Fair.
Sept. 23. At Great Dunmow.

HERTFORDSHIRE ASSOCIATION.

Sept. 8.—Horticultural Show at Harpenden.
Sept. 14.—Bishop Stortford Horticultural Show.
Sept. 15.—Bengo Horticultural Show.

BRITISH BEE-KEEPERS' ASSOCIATION.

ADDITIONAL DONATIONS TO PRIZE FUND.

	£.	s.	d.
R. J. Tomlin	0	5	0
J. Topping	0	2	6
F. C. Barnett	0	5	0
T. Sells	0	5	0
W. Sells	0	5	0
E. Wilson	0	10	0
R. R. Godfrey ..	0	10	0
P. E. Martin	0	10	6
Rev. Thos. Milles ..	0	5	0
D. Stewart	0	5	0

Total amount subscribed to the Prize Fund, 15*l.* 19*s.* The total value of Prizes awarded at the late South Kensington Show, was 56*l.* 7*s.*

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE BEE TENT WANTED IN WALES.

When do you intend paying Wales a visit of instruction? I think it hardly fair that you should wander as far as Ireland with the Tent, when we in Wales are so much nearer to you, and have never yet been honoured with a visit. The old straw skep and brimstone pit are (with few exceptions) in full swing, but if an opportunity was given us of seeing the various interesting and instructive operations connected with intelligent bee-keeping, I have no doubt they would be much appreciated, and in course of time be generally adopted.—T. Joyce, *Fern Villa, Cathays, near Cardiff, S. Wales.*

[We are very glad to hear that a visit of the Bee Tent will be appreciated in Wales, and have little doubt but that it can be arranged for next year, if not with the 'British,' with some other; and failing them, we will do our best to bring about an exhibition by other means. Our correspondent should write to the Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, the Hon. Sec. of the British Bee-keepers' Association, who will give every possible information and assistance gladly.—Ed.]

THE SEASON IN WEST CUMBERLAND.

The season here has been a most wretched one. We had a cold backward spring, cold east winds throughout April and part of May, and then we had a fortnight of beautiful weather, and some early swarms came off. The fruit-trees were laden with blossom, and sycamores, and maples, one mass of flowers, magnificent to look at. But since the 2nd of June there have not been three fine days together, with the exception of the second week in July, when there were actually five days on which it did not rain. Squally, cold, and wet, has been the general character of our summer here. The crop of clover was most abundant, but the bees could not take advantage of it. The heather is three weeks behind, and wants sunshine to bring it out. There is a good deal of it blighted. I have made two converts to the modern system, both experienced bee-keepers, and they are delighted with it. We are still hoping (you say bee-keepers always hope) that we may have a week or two at the heather, but there is no prospect of it yet, as it is raining as I write.—J. P. Q., *August* 15.

BEE-KEEPING IN LINCOLNSHIRE.

Notwithstanding the efforts made by our practical and indefatigable secretary, R. R. Godfrey, Esq., assisted by a practical and energetic committee, it is lamentable to see how tenaciously the cottagers stick to their old method of killing their bees with brimstone to obtain their honey, it being the easiest way of accomplishing their object. They do not understand the utility of bar-frame hives and comb-foundation, so I determined, as it was only a sacrifice of time, with a little exertion, to teach them a practical lesson by begging their bees and driving them, also assisting to cut out (with my knife) their combs. I have been chiefly assisted by my boy just home from school. With very few exceptions, I have saved all the condemned bees in this neighbourhood for miles round, having driven forty-nine, and bought ten stocks of bees.

They are surprised that with my large occupation I should think them worth the trouble, and wonder how they will get on for comb and food during the winter. They are anxious to know about bar-frames and comb-foundation, and will try them, if I am successful, in the spring.

I have advised a friend, Mr. Brown, of Swineshead, to adopt my plan, and he has taken more than I have, and we have saved the lives of over 130 stocks of condemned bees.—R. Thorpe, *Evedon, Lincolnshire, Aug.* 20.

THE SEASON IN IRELAND.—GETTING RID OF FERTILE WORKERS.

The continual rain has rendered the season a most disappointing one for bee-keepers, the more to be regretted considering the great interest there has been taken in bee-keeping and its improvements for some time past; also the great loss it has occasioned in young queens on their first flights.

Out of eleven, I had five queenless hives. This was bad enough; but what I feel more, having had four imported Ligurian queens, I naturally expected to have raised a few pure, or at least good, hybrids, and promised some to some friends; but now I find I have not enough for myself. To add to my misfortune, three of the queenless hives had fertile workers. It may be interesting to some of your readers to know how I got rid of them.

I took the three old hives, and placed them together about ten yards from their former position, putting other hives in their stead with some empty combs, and combs of brood in each. When most of the bees had returned to their old place, I united the remains of the three in one, and left them some of their drone-brood with plenty of comb-foundation, so as to give them something to do as long as they lived. What appeared to me very strange, being the first time I observed it, in the hives where the fertile workers were, the bees were raising queen-cells, some of which contained from fifty to eighty eggs; a few were sealed, in which, on opening, I found from three to four large grubs. In some of the worker-cells, I counted as many as thirteen or fourteen eggs.

I expect we shall have a show on the 31st of this month, and am sure it will excite a great deal of interest. My opinion is, that manipulating with live bees is the only way of teaching the public.—Brother Joseph, *The Abbey, Loughrea, August* 21.

SUMMERING BEES IN YORKSHIRE.

I wrote you a short article this last spring on wintering bees, and how I had found that bees did perfectly well in the coldest winter with being simply confined to eight Woodbury frames, without any additions in the way of end-slips, chaff-cushions, &c., and now write you my experience of the form of hive most suitable for this district, which is quite as good, or better, than most parts of the county, Yorkshire being a bad bee county.

In the first place, I think you might safely recommend hives with ten Woodbury frames as being amply large enough for our wants hereabouts, if it is intended (in the case of swarms) to super them at the top. We should never get bees to fill your large Standard hives. Again, the Woodbury hives, from having straight, internal walls, are much more suitable for packing in with sections. I have been much bothered with virgin swarms—viz., swarms from swarms—this season, nearly all my earliest swarms giving me trouble in this way. I have removed the queens, and returned the bees; but out they come again in a day or two, and nothing seems to stop them. I have had one very curious case. One of my this year's swarms has been swarming regularly every day for the last eight days, and although in returning the bees we have searched most minutely for the queen every time, we have not been able to find her. I have even had a square box made of your queen-excluder zinc fitted to the entrance, about the size of your drone-traps, and still they have swarmed; so I have come to the conclusion that they have gone off with a fertile worker. I have been so bothered with them that I hived them to-day in a skep full of clean comb, and fed them; but after apparently settling for about an hour, they all went back to the parent hive. Query.—Will bees swarm with a fertile worker?

I am strongly of the opinion that hives, to contain swarms, ought to be on the Combination principle to take sixteen or nineteen frames *across* the entrance so that excluder zinc may be used to prevent this useless swarming. I should then confine the swarm to seven Woodbury frames (I am here supposing it is only a moderate honey district), and pack in 2-lb. sections at the back as required (the sections being, of course, divided from the frames by excluder zinc). If the hive were of capacity to contain fourteen Woodbury frames, there would then be room for eighteen 2-lb. sections; if a nineteen-frame hive, then room for twenty-four 2-lb. sections.

I would suggest that single-walled hives should be used for swarms, with a window (with zinc or wood slide over it) at the back, so as to see how the last batch of sections were getting on, and that a sheet of glass might be used to partition off the first lot of sections. This would make it unnecessary to keep lifting up the sections to see how they were getting on.

If you think my remarks will be of any value, please let them appear in your *Journal*, but with comments or better suggestions from yourself.—A. W., *Ripon, July 25th.*

[The opinions and experiences of 'A. W.' do not agree, to our satisfaction, for though he believes ten-framed Woodbury hives to be large enough for those who intend to adopt the supering principle, his bees are continually showing that they are not large enough to accommodate them satisfactorily. They swarm out, swarms from swarms, in spite of every precaution and attempted remedy: and, unless they really are too small, we can only suggest one other cause, viz., they are not sufficiently protected from the rays of the sun, and so become too hot to hold the bees comfortably.

We have never heard of bees having swarmed out with a fertile worker instead of a queen, nor have we ever, until this year with our Syrian 'tigers,' found fertile workers in stocks that have appeared in swarming condition.

The remarks on straight, internal walls for facilitating the use of sections is doubtless intended to apply to the 'Combination' principle advocated in the latter part of the above, which, being in accord with our teaching for the past two or three years, we cannot fail to agree with. We cannot, however, approve of open frame-ends and unprotected hive-walls; they by no means dovetail with our ideas of successful winter preparation.—Ed.]

SUCCESSFUL BEE-KEEPING.—CAGING THE QUEEN.

Enclosed find extract from information I supplied to our local paper relating to the management of a hive of bees which yielded 210 lbs. of honey in eight days. You see your suggestion of caging queens is responsible for large yield.—Benj. Harding, *Colehurst Manor, August* 27, 1881.

'We have much pleasure in communicating to our readers the method adopted by Mr. B. Harding, of Colehurst Manor, in the management of the hive of bees whose extraordinary yield obtained him first prize at the late Bee Show at Shrewsbury.

'A large bar-frame hive (14½ by 16½ by 9¼ inches) showing signs of swarming was supplied with a Stewarton super; a zinc excluder to prevent the ingress of the queen being used. On Saturday (exact date not given) it swarmed, and the swarm was secured. The super partly filled was taken away, and yielded 15 lbs. of honey in the comb. The stock hive was opened, the honey extracted—55 lbs. The queen-cells excised from the comb, which was returned. The queen, with the swarm caught, and caged on the comb; all the bees reunited; and as many hung out at the mouth of the hive, two ten-bar frame super hives were placed on the top of the stock-hive, with free passage for the bees. The following Tuesday the honey in the two supers was taken. Thursday the process was repeated, and on Saturday the honey both in supers and stock hives was taken, 140 lbs. being obtained in the three operations, which, with the 70 lbs. on the Saturday first named, made the wonderful amount of 210 lbs. of honey taken from one hive in eight days. The causes of this great success may be briefly summarised.

'The queen being caught and caged could not fill the vacant cells with brood, as she otherwise would have done; thus there was so much more room for storage of honey, and the thousands of bees that would have been occupied with the young ones were free for other work.

'The full energies of a strong colony could find in the three hives ample space for their employ.

'The three hives were ready filled with comb, so there was no time wasted in building that (20 lbs. of honey are required to make 1 lb. of comb). All that the bees had to do was to gather and store honey. In like manner the cells were emptied as soon as full, and the time which would have been wasted in sealing them was utilised.

'The week selected for the experiment was one of the very few when honey is plentiful; the clover-fields and the lime-trees in full bloom.

'The honey was taken with a centrifugal slinger, and thus the comb was returned to the hive uninjured.

'No doubt the caging of the queen-bee for the eight days would cause the loss of some thousands of young bees; but now that the breeding season can be so readily prolonged by means of artificial feeding, that is not of the consequence it otherwise would have been.

'The honey, which was of superb quality, was ripened by evaporation and gravitation, as recommended by the leading apiarians, and we may safely say could not be surpassed by any of English collection.

'The extreme simplicity of the treatment which has led to such marvellous results must more than ever cause bee-keeping to be regarded as a source of profit, and no doubt the thanks of many will be accorded to Mr. Harding for this practical proof of what is possible to be gained from them. Congratulations, in which we heartily join, are alike due to him for his skill and his success.'

WINTERING IN THIN SWARM BOX.—CLOSE ENDED FRAMES.

Referring to what is said on p. 73 about 'Wintering Bees in an Half-inch Swarm-box,' I wish to ask, am I right in supposing said box, which wintered so well, and threw off so many swarms, not to have been protected in any way, not even with a roof of some sort all last winter? I can scarcely credit it. If it stood unprotected, and the weather in South Wales was at all as severe as we had in north-east Ireland, we may abandon all sorts of water-proofed and thick-walled hives in favour of packing-cases of $\frac{1}{2}$-in. stuff, $14 \times 14 \times 9$. Surely there is some omission in the description. I am deeply interested in construction of cheap hives suitable for cottagers, and would abandon everything yet tried in favour of this Welsh discovery, if genuine. The matter is well worthy of more serious attention than a passing notice, and I trust will be well ventilated. —H. W. Lett, M.A., *Hon. Sec. Co. Armagh B. K. A., Ardmore Glebe, Lurgan, Aug.* 13.

[There cannot be a doubt but that some kind of roof was provided to throw off the rain, but the 'no protection,' we take it, means there was no outer case or covering to the walls of the swarm-box. That bees will winter well in wooden hives in which the combs touch the walls, as they do in skeps, is no new Welsh discovery; but the principle underlying which we have for years been hammering at, and trying to drive into the understandings of our readers. It is well known that bees build their combs *against hive walls* when there are no frame-ends to prevent them doing so, and a grain of thought will show that when so built against wooden walls, be they ever so thin, the said walls, so far down as the comb is built against them, are thickened illimitably(?), leaving only the $\frac{1}{4}$-inch perpendicular streaks between the ends of the comb, to be acted on by outside influences. The walls parallel to the outermost combs are, of course, fully exposed, but the outside combs themselves afford the best inner protection to the bees that it is possible to conceive, and their ends being built against the hive, they are, being cellular, the best natural non-conductors imaginable. We are infinitely obliged to our reverend and esteemed correspondent for his valuable remarks: the subject is worthy of very serious attention. The box has withstood the rigours of one most severe winter, and being 'well found' within, would withstand another and another. There is only one thing against simple boxes for hives: the combs are not moveable, but supposing such boxes were cut into sections, the cuts following the spaces between the combs, they would then be so; and the sections, when placed together again, would restore the excellence of the bees' own arrangements. Such box would then be a moveable comb-hive with close frames, the very thing we have advocated for years, almost to nauseaty, if the word be permissible. Our paper read before the British Bee-keepers' Association in the spring of the present year is full of the subject, but Mr. Cheshire condemned the principle utterly, claiming that bees prefer to cluster on cork-stuffed hive-walls in preference to their own natural combs, but ignoring the fact, for fact it is, that open-ended frames render the combs untenable. We are glad, however, to know that the principle of close-ended frames has at last been recognised—at the late Exhibition at South Kensington one hive with such frames was 'commended' in the class for 'best hive,' and another in that for the best hive of a substantial character for general use in an apiary took '*first prize*.' At the Dairy Show last year a similar hive was exhibited, and was unnoticed. We have that hive in use, and all who have seen it are eminently satisfied with it. A swarm was put into it on June 14th, and in three weeks it had thirteen frames filled with comb, and had there been space, more would have been added. All the space occupied is charged with bees, the hive is of great weight, and of all the objections urged by Mr. Cheshire, not one has yet been found to exist, in fact.—Ed.]

SINGULAR FREAK OF BEES.

On Thursday afternoon I went out about 2 p.m., the sun being bright, to see my bees, and found a bar-frame hive, which had been all right in the morning, totally deserted. The bees had all gone off, and I could find no trace of them. In about an hour, however, they returned, and took possession, without loss of numbers. The hive had plenty of food inside, as well as brood (apparently quite healthy), and as there were no queen-cells, I am at a loss to account for this behaviour. Can you give any explanation?—A. S., *Clydesdale, Aug.* 20.

[But for the presence of plenty of brood, it might have been that a young queen had been raised and gone out on a wedding expedition, and that the bees, mistaking her purpose, had 'swarmed' out, and returned with her. We cannot, in the absence of such cause, suggest another that is likely to be correct.—Ed.]

NEW ZEALAND FLAX.

Mr. Cameron, Jersey, says that he has never succeeded in making the seeds of *Phormium tenax* grow. They are hard to grow, even in New Zealand, and must be soaked for twenty-four hours in hot water. Will Mr. C. say where plants in Jersey can be procured? I have gathered in Canterbury, New Zealand, *one pint* of honey in a flax swamp before breakfast.—J. O. Hoare, *Bitterne, Southampton.*

PARALYSIS IN BEES.

Seeing your paragraph in this month's *Journal* about the supposed paralysis of bees, I enclose you a letter from last week's *Pharmaceutical Journal*, which, perhaps, may throw some light upon the matter.—W. B. J., *Market Rasen.*

'The Intoxication of Bees.

'Sir,—Having noticed the remarks in the *Pharmaceutical Journal* of July 30, upon the apparently intoxi-

cating effect on bees of the *Asclepias cornuta*, I took an opportunity a few evenings ago of slightly extending the observation. I found the bees, on the asclepias, in exactly the same lazy state as described, and moreover that they could be pushed off the flowers without flying away. When thus made to quit their hold they fell heavily to the ground, quite unable to use their wings. Passing on through the different natural orders, wherever I found bees on plants I pushed them off, and in nearly every case they were apparently intoxicated, or at any rate in some abnormal condition.

'I took a note of the following plants producing this effect, viz.:—*Centaurea scabiosa, Echinops sphærocephalus, Impatiens glandulifera, Cephalaria tartarica*, and some others (*Compositæ*).

'It may, therefore, I venture to think, be taken for granted that the asclepias and teazle cannot be considered the only apian dram-shops. I would further add that these intemperate bees were without exception drones.

'16A *Bridge Road, Hammersmith, W.* T. F.'

UNITING SWARMS—A SAD MISTAKE.

A few days since two of my stocks of bees rose at the same time, and having but one empty bar-frame hive I put the first stock shaken into it at once, and in the evening united the second swarm to it, having well sprinkled it with syrup. They went up well, and to all appearance amicably. Being absent from home the next day I saw nothing of them that day; but the day after, on examining them, I found the bottom of the hive covered with wet dead bees, and very few others alive;—the two swarms destroyed. Can you, in your next issue of the *Journal*, suggest the cause of the destruction of the bees?—J. S. I., *Mevagissey.*

[In uniting swarms that issue on the same day very little precaution is needed; and had the directions so oft repeated in *Journal* and leaflets* been followed, the loss would have been almost impossible. For the benefit of new readers we repeat the directions given in our leaflet, so far as the actual union of swarms is concerned, and would advise a perusal of the whole pamphlet by those intending to 'unite.'

'Uniting Swarms.—In uniting swarms to each other, if they be normal swarms, *i. e.* such as come off naturally through increase of population at a season when honey abounds, little precaution is necessary, as, being already gorged with honey, which instinct teaches the bees to take with them as a first means of commencing the building of comb, they will be too heavy and lazy to attempt great resistance.

'If two such swarms issue on the same day, they should each be hived separately until the evening, the second being put into an old skep or box. Number one swarm should then be placed on the ground, near the stand it is to occupy, a stick of about an inch diameter being laid cross-wise under it to keep it off the ground, and the other should be shaken out of its hive in front of it, when the second will crawl in and swell the numbers of the first, and, uniting with it, a full swarm will as a rule be safely formed.'

The immediate cause of the disaster was suffocation; the heavy, saturated bees crawled as they best could into the hive and joined the cluster already formed there, but their weight most probably broke down the festoons of bees, and wet and dry were tumbled together on the floor-board, choking the entrance and bringing about the suffocating heat that produces sickness in the bees and causes them to vomit their honey, hence they became a heap of drowned bees.—Ed.]

* *Uniting* may be had post-free for 1*d.* from our office.—Ed. *B. B. J.*

MULTIPLICITY OF QUEENS.

Last Saturday I transferred for a neighbour the bees from a straw skep into a frame hive. Two days previously, and also the same morning, we could hear three queens calling in the hive. My impression was that the queens calling would be in the cells just ready to come out; but when we opened the skep we found seven live and mature queens. I should not have been surprised at two, but is not seven a very unusual occurrence? Again, for curiosity, we opened all the queen-cells, some of which were sealed up and contained nothing; but out of one came a live common worker-bee—a young and very small one.

I began to keep bees this spring with four frame-hives, in this very out-of-the-way place, which hives were unanimously condemned by all the veteran bee-keepers; they have all tried wooden hives, and all failed. In May my bees were far stronger than any of theirs; and on the 14th I took an artificial swarm very successfully in the presence of several spectators. The knowing ones came to the conclusion that the parson had certainly taken leave of his senses, for the stock must die without a queen; but, to their great surprise, both swarm and stock are doing remarkably well. One of my neighbours has transferred all his bees to frame-hives on Abbott's principle. Another came to me the other day and wanted to buy a swarm in a box-hive. I can't sell, but am very glad to give instruction and advice. —Icardus, *Durham.*

[It is not uncommon for bees when about to swarm to raise twenty, thirty, or even more queen-cells, many of which come to maturity about the same time, and, as a matter-of-fact, often issue together when 'casting.' From the 'piping' heard, it is evident the young queens were being kept in their cells by the bees; but when the driving operations commenced the 'guards' forgot their duty and sought their own safety, and the young queens escaped. The strange part of the experience was finding a worker bee in a queen-cell; but that was eclipsed at Shrewsbury by an Hon. and Rev. correspondent finding two workers lying end to end in a queen-cell. (See August No., p. 73.) Bees have, doubtless, done queer things throughout, but there have never been so many keen eyes watching for them as at the present time, hence, probably, they have not been noted.—Ed.]

CLEANING OR ROBBING THE DEAD?

I frequently see one or two bees on the floor-board apparently in the act of cleaning another. They put out their tongues all over its body, and sometimes one of them takes it and carries it away some yards in the air, and then lets it drop, and returns again to the hive and commences operations on another bee. I have watched them for hours, and it is always the same bees which perform the cleaning part. Will you kindly say in next *Journal* if they really are cleaning the bee, or what they are supposed to be about, as I should like very much to know?—H. W. Durant, *North Lawton.*

[It is a common occurrence for the live bees to scrutinise the dead before carrying them away, but seeing that they pay so little respect to their injured sisters, they can scarcely be thought to be simply cleaning the dead prior to burial. It would almost appear that the dead bees contained, or were smeared with honey, and that the live ones were searching them, and removing it.—Ed.]

Echoes from the Hives.

'With so beautiful weather in England and several parts of Ireland, you will be surprised perhaps to learn that in this Ultima Thule of Connaught I can solemnly assert that for the past seven weeks we have not had as many days of genuine summer weather.'—H. J. M.

Lochgilphead, N.B.—Bad Season in Scotland.—'I have no honey at all here this year so far; there have not been two consecutive fine days the whole summer.'—J. B.

Horsham, August, 1881.—'I am bound to tell you anent your comb-foundation that I judged too hastily, and without "foundation," about their "sagging" in case of swarms. First, the two outer frames were only covered by bees on one of their sides; and second, the foundations were not fastened the whole way along the frame's top—*hinc illæ lachrymæ*. I have studied with much interest what you had to say about "hives," and Messrs. Cheshire and Cowan's respective remarks thereon.'—J. F. H.

Kingswear, Devon, July 7th, 1881.—*Freak of bees.*—'I do not know very much about bee-keeping, but a thing has happened which I think is rather strange. I left a slab of empty comb outside one of the hives on a piece of board: the bees in the hive near to which it was fastened it down, and filled it with honey. I should think this something out of the ordinary; and this is the reason why I tell you about it, thinking it might be of interest.'—S. Appleton.

Doune, N. B., Aug. 10, 1881.—*Season in Scotland.*—'This is still a bad season for honey-gathering all round our locality. Heather is just coming into bloom, but there is no heat. To-day we have had heavy rain, and at present the wind is blowing wildly.'—John Main.

Oban, Aug. 12, 1881.—*Weather in Scotland.*—'The weather is still wretched, and will prevent many heather honey-supers this season. What a contrast from last year! You then had the rain, and we the sunshine. Now it is reversed. Enough to make bee-keepers quake for their poor pets.'—R. J. B.

Sleaford, Aug. 12, 1881.—*Condemned Bees.*—'I have begged the bees, and assisted to take this season thirty-three stocks, and have about ten more to take, all from cottagers, who would have killed them with brimstone. I give six full sheets of comb-foundation, and put three of the weak, and two of the strong, stocks together. A friend has helped me to take a few, but the greater part have been taken by myself and my son, a lad just home for his holidays, which astonishes the cottagers, that, with my large occupation of 700 acres, I should think it worth my doing: this is practical logic. They are anxious now about bar-frames.'—R. Thorpe.

Gordon Street, Glasgow, Aug. 16, 1881.—*Prospects in Renfrewshire.*—'What awful weather we are having! Your bees appear to have done well, while here it is one stone of sugar after another to keep them from starvation. I do hope we will have a fortnight yet to let them do something at the heather; if not, it will be desolation everywhere in the north. This is a bad year to stir up people to bee-keeping. Good book that of Cowan's, eh? I am much pleased with it. Next year the Caledonian Show takes place in Glasgow, when we hope to see a lot of English faces again.'—R. J. Bennett.

Leicester, Aug. 18.—'I am glad to tell you that I have had unusual good fortune with my bees this summer, having taken over 200 lbs. of honey from five of your framed hives, which appear to have answered admirably. I hope to send a report of my experience and good success with my own bees to the *Bee Journal*, which I hope will be received for the encouragement of other novices. I have done a great deal in the neighbourhood to promote apiculture, and have been sent for, and have sent (at least, my nephew and gardener) from far and near to render assistance, and give advice on the subject which seems to be commending itself to the minds and attention of very many. Thanking you for your prompt attention to all my requests from the first of my introduction to you.'—L. T.

Queries and Replies.

Query No. 408.—*Wax Extracting.*—I expected, among the numerous exhibits at Torquay last week, to have seen some kind of an apparatus for the more easy way of extracting wax from the combs. Will you kindly insert in the next month's *Journal* if there has been any improved method, or what you deem the easiest way?—Jno. E. Adams, *Kingsbridge, Aug.* 15.

Reply to Query No. 408.—Mr. Hooker's plan is the best we know of, it being simple, easy, and inexpensive. Break up the comb and boil it in a vessel of water, mashing it with a spatula to cause the thorough separation of its cells, and when sufficiently cooked, press all the particles of comb under water, and the wax will float on the top, when it may be allowed to cool and set, or it may be skimmed off and thrown into cold water. To depress the waste particles, take a hoop of the size of the vessel and sew strainer canvas over it, making a kind of shallow net: put this on the boiling mass and press it down under the water,—a little bagginess will enable the operator, with the aid of the spatula, to disturb the crust the exuviæ will form under the canvas, and continued boiling will cause all the wax to come to the surface, to be dealt with at pleasure.—Ed.

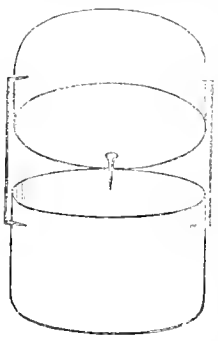
Query No. 409.—*Condemned Bees, and Ligurian Queens.*—I intend to buy a lot of these about the end of September, the time the general massacre takes place in this neighbourhood, and shall be glad if you will answer the following questions on the subject:—1. Would the time I transfer them be a good time to give them a Ligurian queen, or had I better wait until spring when there are more young bees about? 2. How many pounds of syrup should I give each lot if I put them into hives fitted with foundation?—Tyro, *Osmestry.*

Reply to Query No. 409.—1. There are several considerations which make it difficult to advise on the matter. Queens are cheaper in autumn than in spring, but there is the risk of introduction, and the impossibility of repairing the loss of an alien at so late a period, except by incurring a similar risk; then the possibility of the rescued stock going wrong and 'coming to grief' in the winter, after the queen has been successfully introduced; and again, the chance that in the spring a costly queen may be found at the head of but a weakly colony, and unable from sparseness of attendants to develope her powers to the full. Our practice and recommendation are always to unite valuable queens to the best stocks in the apiary, where they will be reasonably safe. 2. There is no rule on this point, so much depending on the time, the weather, and the surroundings; but if the bees have from 10 to 12 lbs. of sealed honey, or syrup, available in the hive when they go into winter quarters, they will not be likely to die of starvation. If they breed much they will consume food in proportion.—Ed.

Query No. 410.—*Driving.*—Will you kindly say where I am wrong? I am but a beginner. I drove three hives this week, but could not get above half the bees to leave the combs, and consequently got stung badly in clearing them out afterwards, besides having a good number of them baked in the honey. Before I commenced to operate upon them, I smoked them with tobacco and let them remain quiet for about ten minutes, when I then inverted the full hive and placed an empty one on the top of it and bound both round with a strong

towel and tapped them with two sticks about ten or fifteen minutes, the failure which I have before stated resulting. Your advice will be most thankfully received by—ALFRED NISBETT, *Cornsall, Kidderminster, Aug.* 17.

REPLY TO QUERY No. 410.—Tapping with sticks is not all that is necessary,—the combs should be made to tremble or they will not be considered untenable by the bees. To drive 'clean' the top hive should be fixed above the full one at an angle of forty-five degrees, or thereabouts, as suggested in the figure. The back edges of the skeps can be fixed together by thrusting a wire nail or a thin iron meat-skewer through one and into the other, and the top one can be kept up by two sharpened wires bent at right angles at each end and thrust into both of them, as indicated. With this arrangement there will be only a small point of junction between the two hives, and the bees can be tickled with a feather if they show symptoms of idling in the lower hive, and blowing sharply between the combs will often expedite their movements. It is sometimes necessary to help them on the way with a spoon, or similar implement, for occasionally they get lazy through being gorged and form a pad or cluster, and do not feel the jarring communicated to the hive and combs, sufficiently to cause them to ascend. When the top skep is placed close upon the other, the bees begin to go up all round them, and thus a ring of bees is left on the upper edge of the lower one. After smoking the bees there is no danger of their flying during the operation.—ED.



QUERY No. 411.—*Treatment of Rescued Bees.*—1. I have driven two stocks of bees, belonging to a poor woman, and united them in my Irish hive, with eight frames of sheet-foundation, and am feeding them with syrup. For how long must I feed them? 2. Am I to leave the space behind the dummy-board empty now, and fill it with chaff or sawdust for the winter? 3. In driving bees I find that though they start very well, they progress very slowly after a time, even when the queen has gone up, in spite of drumming, and perhaps even after an hour the combs are not free from them. Yet I read of bees being driven in four or five minutes; but unluckily I have never seen the process. 4. Ought bees to be driven in the neighbourhood of other hives, or should the skep be carried further off? This woman had fourteen skeps in a row, all full of bees, and all became much excited, and made operations difficult and rather dangerous. 5. *Market for Cottagers' Honey.*—The poor people don't know how to find a market for their honey, and this discourages them from bee-keeping. The neighbouring grocers either won't buy, or else wish them to take the value in goods, and they prefer cash. Can you tell me how to help them? I see you mention Mr. Huckle, but I am not a member of the B. B. K. Association, and have no claim on him, I fear, unless being a subscriber to the *B. B. J.* is sufficient? 6. Should all sections be removed now, whether full or not?—A HAMPSHIRE LADY.

REPLY TO QUERY No. 411.—1. We can only give general directions that the bees be fed so that they have about a dozen pounds of sealed food to winter upon. With an open autumn and tolerable surroundings it may scarcely be necessary to feed at all. The bees should have access to as many combs only as they can cover, others being added as occasion—shown by their ability to work them out and occupy them—may determine. 2. The space in rear need not be filled; but it would be well to lay a few folds of carpet or drugget over the quilt, and let them hang into the hive behind the dummy. If the bees be kept close with no vacant space in their nest proper, they will not need further protection than the Irish hive affords. 3. The reply to Mr. Alfred Nisbett on this subject is applicable here. They should not be allowed to loiter at the junction of the hives, but should be forced to 'move on' by disturbance with a twig or feather. 4. They may be safely driven near other bees, but the comb should not be transferred there. Driving ought not to occupy more than from five to ten minutes, and in presence of such an array as fourteen in a row; each lot of bees should be replaced on its own stand as soon as the queen has gone up amongst them, otherwise the flying bees, missing their brood-combs and their queen, will be likely to enter other hives and cause excitement and commotion. With the queen and bees back in their old place the flying bees will enter and be quiet, and driving may proceed; the bees from the old stock being forced into another skep, and united forthwith to those with the queen. 5. We know of no better way to help cottagers than by inducing them to get their honey stored in neat saleable packages, when if neighbouring gentry will not buy it grocers will do so gladly; or it can be sent further afield. It is hard on local tradesmen to expect them to buy the unsold balance of bee-keepers' honey after the gentry and others have been supplied by bee-keepers themselves, and it is no wonder they are not 'keen' for the business. The difficulty as regards the British Bee-keepers' Association can be overcome by the payment of five shillings per annum, and is therefore a very small one. The *Bee Journal* shows how to obtain honey, which was the chief trouble before its advent, and in overcoming this difficulty the subscribers get a full return for their subscriptions. As Editor we do our very best, in a journalistic way, to promote the interests of our readers, and of bee-keeping generally, but cannot undertake personal responsibility as honey salesmen, or merge the individuality of our *Journal* with affairs of Associations. The objects are identical, and each can help the other to the end in view, but there is no reason why they should be mutually involved. Cottagers' honey, obtained by squeezing the combs, and stowed in crocks and gallipots, can have no chance with the beautiful liquid honey obtained by the aid of the extractor, and put up in neat glass jars, many thousands of which we have been instrumental in providing this year. Nor can the comb-honey in straw skeps 'stand' by the side of that in the beautiful little sections, which are so cheap to purchase, and are so acceptable to the bees and to the public generally when filled. One half at least of the difficulty experienced in selling honey lies in the fact that too high a price is demanded for it. In the West End of London unique specimens of comb-honey realise 2*s.* 6*d.* per pound or more amongst the aristocracy and merchant princes; and that is unfortunately taken as the price which it ought to realise generally: hence at the late Kensington Show many 2-lb. sections were priced at 4*s.* and 4*s.* 6*d.* each, and remained on hand, while those quoted at 3*s.* found ready purchasers.—ED.

QUERY No. 412.—On May 31st, my bees began to work in a super I had put on a few days before; by the 8th of June they had nearly filled it, and showed signs of swarming, I therefore put another super on the top of the first one: they began at once to work in this as well as the lower one, and by the 23rd of June they had quite filled the lower super with comb and honey, and nearly completed the second one, though the honey was not sealed in either super. As they again showed signs of swarming I put on a third super, and they began to work on it at once. On the 22nd of July, as I was going from home I took off the two lower supers, replacing the third; but though all the comb was beautifully sealed inside, the outside frames of each super, although full of honey, were not sealed. It was the

same with two supers I took off another hive, the outside sections next to the glass were not sealed, although they had been kept covered and quite dark. I shall be much obliged if you can tell me the reason for this, as it will help me another year.—G. P. *Cobham, August* 14.

Reply to Query No. 412.—It would appear that the 'signs of swarming' were deceptive, the fact being that the heat in the hive was too great, and under the circumstances giving the third super was an error, inasmuch as it gave the bees more super work to do than they could accomplish. Giving ventilation at the bottom of the hive would have been the correct thing, the bees then, instead of building additional comb in the third, would have completed the comb on the other two supers. Doubtless the heat was great when the third super was put on, but honey is not always forthcoming with heat, and a little nicety of judgment is demanded at such times as to whether to give increased super space or bottom ventilation. The condition of the surroundings affords the best criterion, and the bee-keeper will best know whether the honey prospects will warrant the former. It is easy to prophesy after the event, but from the fact that the bees did not effect in the last month more than half as much as they did in the previous three weeks, it is evident that the latter course should have been applied.—Ed.

Query No. 413.—1. *A Beginner's Autumn difficulties.*—I must preface by saying that I am only a beginner this year. I started with six hives—bar-frame hives—after the pattern in *Modern Bee-keeping*, 15 × 15, double-walled all round; swarms placed in May 30, June 1, June 15, June 15, June 24, July 1st; weight of swarms 3 to 4 lbs.; gave six full frames of foundation, and added as required up to ten. I find all the frames of most of the hives full of honey and brood. I placed a flat of sections on three earliest and strongest, July 18, but they have not been touched—could I have *expected more?* 2. I drove a stock twenty-one days after it had swarmed with the greatest ease in ten minutes, not above a dozen bees remaining in the stock. With this I was much pleased, as I have never seen it done. But last week I got into the same difficulty as one of your correspondents in *B. B. Journal*—trying to drive young and weak stocks, and had at last to knock them out. Now as I have about twenty condemned stocks offered me I should like to know when is the best time of day? 3. About the best time of year? 4. Is there any difficulty if the stock is full of comb, &c.? 5. I think of uniting each two condemned stocks, and placing them in six frames (three full ones from other hives, and three of foundation), and feeding up. Shall I be right? 6. Would they require feeding at once if taken next week, or could I leave that till the end of September? 7. Is there any rule by which I can tell how many frames the bees will require (that is, the condemned stocks): for instance, so much weight of bees for each frame? 8. Supposing I am only able to give full sheets of foundation to condemned stocks—we might now say *rescued* stocks—will they be able to work it out and store sufficient food? Would they be able to do it without foundation—say, in a straw skep?

Reply to Query No. 413.—1. Doubtless you would have had much more if there had been more room in the body of the hive, and had more frames been given. It is most singular that in the face of the bees continually refusing to enter supers, they should be cramped in their body-hive, to choke the breeding-space with honey. A good swarm should have filled double the number of frames in the time, in such a season as the past has been. 2. If for making artificial swarms, about midday? If for taking the honey and transferring, towards evening. 3. At the close of the honey harvest, whenever that may be. 4. We have never found any difficulty; but we always take care to make the combs tremble or jar. Many persons act on the principle that it is the hive only that needs rapping, whereas it is the trembling of the combs that the bees so much dislike. 5. It would be better to give the bees, say, four frames of foundation only, or they, having already three combs may not care about making much more. Let them do their best, and help them with combs of honey and pollen afterwards. 6. This must depend upon the weather and surroundings: if they can get but a scant supply they ought to be fed. 7. About a pound for each frame to begin with will do fairly as a criterion; but the safe principle is to shut them up with only as many frames as they can cover on both sides. 8. Yes, in the first instance, if fed gently and continuously, because there will be so little labour in the production of comb, and breeding and storing will proceed rapidly.—Yes, also, in the second case, if the bees are sufficiently numerous, and have, say, six weeks of fine weather before them, and plenty of food; otherwise it is absurd to expect a swarm to do in six weeks what many swarms cannot effect in as many months. It is true that by feeding heavily late rescued bees may be induced to fill their hive with combs, and attain great weight; but that is not *all* that is necessary to success. The comb should be chiefly worker-comb, and there should be a good batch of brood, neither of which conditions is likely to be obtained by late copious feeding. In our last issue we showed how comb foundation can be supplied to skeps, we do not recommend their use as in them combs are not moveable; but those who insist on using them should at least give the bees a fair chance, and save themselves considerable expense, by giving them foundation, as suggested. Worker-cells can thus be insured on every bit of foundation supplied; and drone-cells, if any be built, will be on the outer edges of the comb, in the position experience teaches us to be most desirable.—Ed.

Query No. 414.—*Removing Supers.—Extracting Honey.—Loss of Queens.*—Kindly inform me, through the *Journal*, the correct way to take off a super, and also how to take the honey from the frames to put them in the extractor. I have lost three queens from one hive, and I cannot account for it, as I find there is plenty of brood and bees. Could you give me any idea as to a cause? The only cause that I put it down to was the cold nights we have had.—J. S. Ford, *Devonport*.

Reply to Query No. 414.—Blow a little smoke into the super to cause some of the bees to leave it, which they will quickly do if it be fit for removal, for under the influence of fear they will seek out some open honey cells which a 'fit' super will not contain. Then, if it was properly put on, *i.e.*, with a thin honey board between it and the brood nest, it may be prised off and carried away, and the quilt should be put on to the hive forthwith. If the bees are troublesome smoke must be used during all the operation, but as a rule very little will be needed. If there is no distinct bottom to the super and the combs are built down to the hive, a thin string or wire must be drawn with a see-saw motion between the super and the hive to sever the combs and release the super, and then a little smoke should be driven in, and the super raised about half-an-inch supported on three or more wedges that the bees may lick up the loose honey set free by the wire. In a quarter of an hour the super should be lifted off. The bees brushed from its lowest parts, and it should be treated as described on the second page of the August *Journal*. In extracting honey from combs in frames, it is not necessary to cut them from the latter: but with a sharp honey-knife slice off the covers from the sealed cells, and place the comb with the unsealed side against the wire-frame of the extractor, when if the latter be put in motion the honey will leave the cells and will be found in the reservoir intended to receive it. When one side of the comb has been relieved the other should be similarly treated.

Without more particulars we cannot even guess a

reason for the loss of the queens, but it was scarcely likely to have been caused by the cold at this time of year.—Ed.

Query No. 415.—*Casting out Brood.*—I should be obliged if you or some reader of the *Journal* could explain the following:—I was lately examining some 2-lb. sections nearly filled and removing some of them, when I found a little drone brood in one (about six cells), and in another, in a worker cell, I found about one-eighth of an inch of the tail of the occupant and some honey over it. The remains of the young bee appeared quite healthy, and I do not think there is any foul brood in my hives. Could the bees have cut them away to make room for honey which was then coming in freely for a short time? I had the sections immediately over the frames as the swarm was late, and I thought I had room enough in the hive, there was, however, a little brood in these two sections.—E. D'Olier, Jun., *Bray, August* 4, 1881.

Reply to Query No. 415.—The drone-brood is a natural effect, but the tail part of a worker in the honey is an unusual circumstance, and may be considered accidental. During a rapid incoming of honey the breeding department of a hive often becomes so blocked that the forthcoming bees are less in number than those that die through overwork, hence the idea of swarming is abandoned, and drone-brood cast out.—Ed.

Query No. 416.—1. *Skeps on Stewartons.*—In May last I placed two skeps, both well stocked with bees, each upon a Stewarton body-box five inches deep, with four frames, a board, with a good-sized hole through its centre, being in each case interposed between the box and the skep. I calculated upon taking the skeps in about the middle of September, pretty well filled with honey, and keeping the boxes as stock hives. Though these hives, neither of which swarmed, have a good deal of honey in them, as I judge from their weight, and the honey harvest is not over—the heather, a mile or two distant, being just coming into bloom—I do not look for any great crop of honey this year, owing to the cold and wet here; and I now purpose to take only one of the skeps, giving the bees of one hive both the body-boxes, any brood found in the skeps taken being, of course, utilised. In neither box have the bees built their combs truly within the two central frames—the only ones I can see; and I purpose, when I deal with the two hives, to put all the combs in the positions designed for them.

2. *Straightening Combs.*—I have one of your Woodbury hives, in which the combs are not only not truly built in the frames, but also, I fear, in some places fastened together, so that the frames are not now interchangeable. Would you recommend me to straighten the combs this year at the end of the breeding season, say early in October, or to wait till spring?

3. Can you give me the price per pound of a well-sealed cap of honey on or about the 13th instant?—Montanus, *August* 25.

Reply to Query No. 416.—1. The hive that is to be made up of the two body-boxes will have the greater share of the strength of the two colonies, since it will have nearly, if not quite, all the brood of both. Were it our case, we should, prior to sending to the heather, add another Stewarton box to each, the frames and bars being filled with worker comb-foundation, which would help the bees in filling them with comb, would afford occupation for the queens, and cause them to leave the skeps to be filled up with honey, while the breeding space would not be liable to be cramped to destruction should the heather honey-yield be fairly good. If this advice be taken, the present boxes, being above the proposed new ones, will probably be filled with honey to a large extent, and we would leave them to be dealt with in the spring. Late interference is often hurtful, and had better be avoided if possible.

2. If to be straightened this year it would be better to do it as soon as possible to give the bees a chance of making all necessary amendments before the cold weather sets in. If done in October, and frost ensues before the bees have properly fixed the combs, the hive will be in a muddle all winter. Our favourite time for such work is about three weeks after swarming, when there is little or no brood to hurt, but with comb-foundation at hand, we never mean to have any more crooked or old combs.

3. The honey should be about 1*s.* 6*d.* per pound.—Ed.

Query No. 417.—*Queen laying several Eggs in Cells.*—1. I have a small observatory hive containing one Standard frame, into which I put a full sheet of foundation, and a handful or so of bees (Ligurians) with a young queen which had mated with a black drone. The bees soon worked it out; but when clustering could only cover about half of frame, and in this I find the queen has laid eggs; but in some cells she has laid three or four. Is this common when the queen is confined to space? 2. *Wax-moth.*—In two of my hives I have found signs of the wax-moth; there are places (only a few) where they have eaten off the caps from the brood, I have also found some maggots. What do you recommend me to do? They are in new hives containing new combs; but I'm sorry to say I stand but a very poor chance of extirpating them, as I have to keep my bees in an old loft. 3. How many Standard frames will contain food and space enough for the bees to winter on, supposing they are half full of honey?—W. Reed.

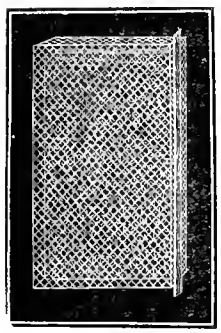
Reply No. 417.—1. It is not uncommon for queens when young and vigorous, and newly taken from hives in which they were laying, to deposit several eggs in single cells, until they get used to their cramped surroundings. In the present case had she not deposited them she might have died of congested ovaries. 2. Keep Ligurian bees only—they are death to the wax-moth—failing that there is no remedy but searching the worms out and destroying them. We have seen patches of brood covered with the web of the moth so that the young bees, though coming to maturity, were unable to hatch out of the cells. 3. As many frames as the bees can cover on both sides.—Ed.

Query No. 418.—*Bee-books.—Extractors.*—Is Mr. Cook's book 5*s.* more elaborate than Cowan's *Guide Book* 1*s.* 6*d.*? Please explain the special merits of Cowan's Automatic Extractor in next number of *Journal*, and state its price.—S. G., *Morecombelake, Bridport.*

Reply to Query No. 418.—Cook's *Manual of the Apiary* is an elaborate work. Special care has been bestowed on the natural history of the bee, which extends from page 24 to 113, and in the remaining 200 odd every material subject has been exhaustively treated, rendering it a standard work of reference. Mr. Cowan's little book is less pretentious; but in the hands of an amateur is not so likely to be confusing. Written for English bee-keepers by a most successful apiarian, with no view to personal aggrandisement, it treats of English bee-keeping as at present practised in an easy, understandable way. Mr. Cook recommends that 'every prospective bee-keeper should procure some good manual, and thoroughly study, especially the practical part of the business;' and this Mr. Cowan's work eminently supplies.

Extractors.—Mr. Cowan's extractors have borne off the palm in England for several years, and are almost the only apiarian implements in which advances on previously acknowledged principles have been duly recognised by the judges. The wire cages to contain the combs revolve on a central spindle within a can, the gearing being of simple construction and arrangement. The honey, during the revolution of the cages, flies out of the cells against the inside of the can, and runs down into the bottom of it, where it accumulates and may be drawn off by means of a treacle-valve. These are features common to the generality of extractors, but Mr. Cowan has devised a new arrangement that renders per-

formance of some portions of the work of extracting automatic and labour-saving, hence the terms applied to his machines. The chief of the improvements recognised by the judges is an ingenious arrangement by which the revolver-cages and the combs within them are reversed, and brought inner side out, by simply turning the handle of the machine in a different direction. For this 'special merit' is claimed, but, with all due respect to the opinions of others, we hesitate before giving it unqualified approval. In common with all extractors whose cages revolve within the can, as at present constructed, there are disadvantages, as compared with others in which the can itself revolves carrying the cages with it. The rapid revolution of the cages alone disturbs the air within to so great a degree that the temperature falls to an extent dangerous to brood, if any be in the combs, which is not the case if the can itself revolves with the cages, the can being closed. The automatic movement of the cages, by which the combs in them are reversed, is not to our mind perfect as a labour-saving appliance. Each cage is of a size to receive a frame of comb which, when placed in it, stands, or should stand, close against the wirework farthest from the spindle. Now it will be evident that, if the cage be not a roomy one, there will be loss of time in getting the comb into it, and if it be large enough to receive the comb easily the automatic arrangement will not act perfectly. Our meaning will be apparent through the illustration: the comb is represented as lying to the left against the cage, with a little space between it and the right-hand side of the cage, and it will be evident that a sudden reversal of the cage will throw the comb to the other side in rather a dangerous fashion. Another feature we do not approve is the necessity for unsealing both sides of the comb before putting it into the cage, rendering those new and heavy with honey exceedingly likely to crushing when the cages are reversed. We cannot state the price of the machines, but doubtless it will be furnished by the dealers, who will note address of querist.—Ed.



Query No. 419. *Driving and Finding Queens.*—The other day, at the Westbury Bee Show in this neighbourhood, it appeared to me that the only difficulty in driving was *to spot the queen*. The only two competitors failed in this respect, and Mr. Abbott had to find and exhibit both the queens. I expect that when I attempt to drive condemned bees into the new frame-hives that I shall have great difficulty in finding the queens, and I shall be much obliged, therefore, if you will kindly inform me as to the feasibility of the following method, which I saw described in an old book of 1848. The bees are driven into another hive; this latter is then held over a pail of water standing near the hive intended to be occupied by the bees, and the contents bodily shaken into the water. A piece of board is placed leading from the pail to the entrance of the hive to be occupied, and the bees in the water helped out on to the board by a spoon or strainer, when they crawl up of themselves. By this means the book says the queen can be easily secured in transit. Now if this is correct, and the bees do not drown in the water, it seems to me an easy and effective method of catching her majesty; but I should very much like to have your opinion on the matter. Perhaps if I shook a portion of the bees at a time into the water, there would be less fear of drowning?—C. F. F., *August 25.*

Reply to Query No. 419.—Finding the queen is rather a test of expertness than a difficulty in driving, since hundreds of bee-keepers (?) effect the latter successfully who have never seen a queen at all. Those who cannot distinguish a queen in her normal condition will not be much helped by half drowning her and the bees that are with her, and neither queen nor bees are likely to be benefited by the sousing, particularly if a cold night follow the operation. An expert will, as a rule, spot a queen as she goes up, in open driving, with certainty, and, if she be with the swarm, will always discover her. Novices, however, often fail in both cases. To prevent the necessity for half-drowning the bees, it would be advisable to sprinkle the inverted hive freely with thin syrup before driving, that the bees may thoroughly gorge themselves, and when driven they may be lifted out in spoonfuls as easily as if they were saturated from the outside, and with a very much better chance of success, besides which the queen would not run the risk of injury from the chill the water would cause.—Ed.

Query No. 420.—*Treatment of Condemned Bees.*—A man two miles from here will let me have eight of his stocks of bees if I drive them instead of letting them be killed. Will it be the best plan to drive them into separate straw hives and bring them home, rather than unite them there and put them in the frame-hives? If I get any brood-comb how had I best protect it while getting it home?—T. L., *Maidstone.*

Reply to Query No. 420.—These queries show how much easier it is for bee-keepers to send to us for information rather than to look for it in their *Journal*. In last month's issue these very subjects were exhaustively treated, and our poor right hand refuses to repeat what was then explained.—Ed.

Query No. 421.—*Wax Scales on Alighting-Board.*—I enclose you three grains of some substance that I find our bees carrying out and depositing on the alighting-boards, and would be glad if you would say what it is. I examined some of the combs the other evening, and they seemed all right, and doing well, and we have been feeding them largely with syrup, as the weather is showery.—H. J. C., *Wexford.*

Reply to Query No. 421.—They were scales of wax that had dropped from the clustering bees. The wax as formed exudes from the sides of the abdomen, and often drops to the floor-board and is lost. The fact of bees carrying out the newly-formed pearly gems is rather against the theory that they will freely use chips of old comb.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. J. A.—The insect was a hornet: they are very destructive to bees. Perching on a branch they will suddenly swoop down upon a honey-laden bee, carry it to their 'perch,' bite off its head, suck out all its honey, drop its body, and repeat the process.

New Zealand Honey.—Your inquiry was noticed in the February *Journal* of this year, which you do not appear to have perused. The sample forwarded came safely to hand, and was worth about 8*d.* per lb. delivered here, though now after a wonderfully good harvest it might not realise so good a price. The best way to test the question will be to consign a few cases, and let them be sold. We are willing to be helpful, but cannot take any share in the risk. In a country where honey is so plentiful that it is used for making blacking, and often (as we hear) cannot be sold at all, even a low price ought to be acceptable.

Glanton, Alnwick.—*Wood Foundation.*—We have already explained in the *Journal* that our machine for impressing foundation on wood is out of order, and therefore we cannot now make it. During the winter months a new machine will be procured, and in the spring we shall be able to supply it in quantity.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION,

INSTITUTED OCTOBER, 1875.

President: The Right Rev. the Bishop of Nottingham.

The Association will hold their Sixth Great

Annual Exhibition of Honey, Bees, Hives, &c.

AND PRACTICAL APIARIAN MANIPULATIONS,

In the CEDAR GROUNDS, LOUTH

(Kindly lent for the occasion by J. BENNETT, Esq.),

On THURSDAY, SEPTEMBER 8th, 1881.

Under the Patronage of the Mayor of Louth.

A CONVERSAZIONE will be arranged on the evening preceding the Show, at the Council Chamber (by kind permission of the Mayor), when short Addresses will be given by practical Bee-keepers, illustrated by Models and Diagrams, and Bees in Observatory Hives, seen working. The VICAR of LOUTH will preside.

SCHEDULE OF PRIZES.

Class.		Prizes.	
	BEES.		
1.	For the best Specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive ...	20/0	10/0
2.	For the best Specimen of English Bees, to be exhibited with the Queen in an Observatory Hive ...	20/0	10/0
3.	For the best Specimen of any distinct variety of Honey Bees, other than Ligurians, or the British Black Bees	20/0	10/0

HONEY.

4.	For the largest and best Exhibition of Super Honey, the produce of one Apiary	20/0	15/0	10/0	7/6
5.	For the best Glass Super, over 12 lbs. nett weight		15/0	10/0	5/0
6.	For the best Glass Super, under 12 lbs. nett weight	10/0	7/6	5/0	2/6
7.	For best Super of Honey, the Super to be of Wood, or Wood in combination with Glass or Straw	10/0	7/6	5/0	2/6
8.	For the best twelve 1lb. Sections of Comb Honey		15/0	10/0	7/6
9.	For the best twelve 2lb. Sections of Comb Honey	20/0	15/0	10/0	7/6

SPECIAL PRIZE, presented by Messrs. W. and T. SELLS, of Uffington, for the largest and best Super of Honey of any description, by a Cottager or Artizan earning less than 1*l.* weekly, who shall be a member of the Association, resident in the County—
Bar Frame Hive, Crate of 21 Sections, 1 dozen Glass Honey Jars.

SPECIAL PRIZE, given by the British Bee-keepers' Association, for the best exhibition of Honey in Sections, each section not more than 2 lbs. in weight, the total weight of each entry to be not less than 20 lbs., by a member resident in the county ... ... Silver Medal. Bronze Medal.

10.	For the best Straw Super	7/6	5/0	2/6
11.	For the best Glass of Extracted or Run Honey, of not less than 5 lbs. nett weight, quality to be the chief point of excellence. *No Exhibitor shall take more than one Prize in this Class* 10/0	7/6	5/0	2/6
12.	For the best and largest Exhibition of Extracted or Run Honey, in glass jars of 1 lb. and 2 lb. weight each 20/0 15/0 12/6	10/0	7/6	5/0

SPECIAL PRIZE, presented by Mr. G. BYWATER, Louth, a BAR-FRAME HIVE, for the best Exhibit in Class 7, by a Cottager, who shall be a Member of the Association, resident in the County.

SPECIAL PRIZE, presented by Mr. R. R. GODFREY, Grantham, Current Vol. of *B. B. Journal*, for the best Exhibit in Class 6, by a Cottager, who shall be a Member of the Association, resident in the County.

SILVER CUP.

The Silver Cup of the Association, open to Members only, resident in the County, for the best and largest Exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of such Member who shall win it Three Times.

13.	For the finest sample of pure Bees' Wax, not less than 4 lbs. weight	5/0	2/6
14.	For the best Liqueur, Wine, or Mead made from Honey, with the recipe attached	10/0	5/0

SPECIAL PRIZE, presented by the Rev. R. B. BAYLY, a Honey Slinger for the best Exhibit in Class 12, by a Cottager, who shall be a Member of the Association, resident in the County.

All Honey must be the *bonâ fide* property of the Exhibitor, gathered by his or her Bees in the natural way this year. (See Rules.)

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 102. Vol. IX.] OCTOBER, 1881. [Published Monthly.]

Editorial, Notices, &c.

WINTERING BEES.

With winter approaching, it becomes the duty of the bee-keeper to use every means that will be helpful in preventing the troubles that may arise through the vicissitudes of our precarious climate. No one can foretell how soon the Winter King may put his seal upon the earth; and, should he come and find us unprepared, no amount of care and afterthought will repair the mischief that will be caused, and we therefore urge our readers to carry out the necessary work of preparation at once.

Many bee-keepers have an erroneous impression that bees pass the winter in a state of dormancy, and the error has led to grievous losses, but, with observant apiarists, it is well known that even in the coldest weather the operations of the hive continue; or, if they cease, the bees die. Throughout the winter, bees consume food to generate and maintain heat proportionately to the changeability of the climate, and for the rearing of brood when their internal economy or exigency induces its production. Normally, bees do not breed during about sixteen to eighteen weeks after the honey season has closed; and long experience teaches that during such period every precaution should be taken to secure the maximum of rest for the bees in every respect. To be at 'REST' they should be subject to no disturbing influences; there should be no feeding or interference, and the hive should be so constructed that external changes of temperature should have no sudden effect upon the bees. There should be no jarring by proximity to railways or roads over which heavy traffic passes, nor by hive-stands being attached to rickety fences or buildings liable to be shaken by the wind. Every disturbance of the hive creates activity amongst the bees, induces them to take food inordinately, generates excessive heat, tends to produce a desire for breeding, and frequently leads to loss of brood by chilling, loss of bees by the wear and tear of labour, and to dysenteric distention through over-charge of fæcal matter, which may, and probably will, eventually develope into the most destructive of all bee diseases, 'foul brood.' The chief requirements for safe wintering are dryness within the hive, a goodly number of bees, and a healthy, fertile queen; a sufficiency of sealed stores, and perfect quietude as above described. The hive should contain in itself the faculty for resisting outdoor influences; there should be no means by which rain or snow could find entrance or lodgment, but there should be facility for upward ventilation without draught, and a means of excluding bright sunlight, particularly when snow is lying upon the ground. The combs should be perforated a little above the centre, with one or two half-inch holes, that the bees may pass from comb to comb without it being necessary to leave the cluster and pass round them to obtain food.

Dryness of the Hive's Interior can only be ensured by keeping out the rain and snow, and by allowing the vapours generated within the hive to escape freely from it. A good water-tight roof will effect the former purpose, and a porous quilt or cushion upon the frames will permit the latter, provided there be free passage of air between the roof and the quilt or cushion, that the vapours of the hive may be driven out and their condensation in the roof space prevented. The escape of the vapours will be materially aided by reducing the vacancies within the bee-nest to a minimum, by enclosing the bees to only as many combs and comb spaces as they can occupy, even to crowdedness, that every part of the nest may be kept as warm as possible by the presence of the bees.

Crowding the Bees.—Very many bee-keepers are puzzled to know to how great an extent the principle of crowding for winter is to be carried. 'If,' say they, 'we crowd our bees into four, five, or six combs, where will be their food supply?' and if we give them solid combs of honey, will not they perish of cold, as if they were between walls of marble?' These

questions bring us back to a point we have all along considered a most important one, viz., that all feeding should be done early; and immediately on the close of the honey harvest, that an income might be kept up and breeding continued. Were this consistently done, the bees would store and seal the honey in arches over and on both sides of the brood, and being crowded, they would be well able to protect the brood, and as it hatched out would find cell convenience for forming the dense cluster in which they winter safely, other arrangements being complete. On the other hand, if not crowded and fed until late, and when breeding has ceased, the bees store their food 'all over the shop,' and when cold weather sets in they have nowhere to pack themselves, the food remains unsealed, and is liable to fermentation and to sweating, through its ready absorption of the vapours of the hive, and such sweating makes combs and bees damp, and the hive a miserable dwelling-place, which will shortly become a dysenteric pest-house. Some of the evils arising from over-full combs may be mollified in a considerable degree by placing them at more than their normal distance apart—say three quarters intead of half an inch, and thus permitting the bees to pack themselves more thickly between them than they otherwise could, and this arrangement will help to dispel the superabundant moisture the liquid honey may contain.

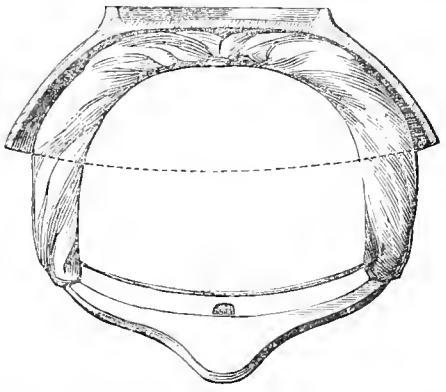
Sufficiency of Bees.—We remember, at a *conversazione* in the summer, Mr. Cheshire describing how he had wintered a teacup-full of bees; and though his assertion was undisputed, it was found difficult to assess their value in spring, except, as may have been, they were the preservers of a valuable queen whose services might then be required. Our object here, however, is not to show how a few bees may be preserved, but how to put a stock into winter quarters that shall do good service hereafter, and the golden motto, 'Keep all your stocks strong,' in this respect, applies most forcibly. To winter well, there should be sufficient bees to crowd at least four combs on all sides, that when condensed by cold shall form at least four seams of bees; and if a stock has not so many, the object should be effected by uniting. Young fertile queens are more desirable than old ones, as they will be more likely to live on; but queens that have done well in the current year should not be lightly superseded, particularly in late autumn when, through possible failure, a hive may be left queenless.

Sufficiency of Food. — This should have been brought about already, but where neglected, and stocks are weak, it will be well to unite the bees and stores till sufficiently strong rather than to attempt by feeding to strengthen them, for where there is no breeding, as at this late season, 'feeding up' will but weaken by the labour it will cause. Many are much exercised as to the quantity of sealed food bees should have, and as a rule we would say about two square feet will carry them through until the crocuses and other early flowering plants give warning for spring feeding, always supposing they have been comfortably packed and put securely at rest as indicated herein. There is a disposition with many bee-keepers to atone for the neglect of feeding in early autumn by laying flour-cake, a hard mixture of pea-flour and sugar, upon the frames, under the quilt, for winter consumption, but we would warn them that that is not the legitimate use of that substance. Sugar cake, *i.e.*, boiled sugar (not barley-sugar), without admixture of flour, will enable the bees to exist, but flour-cake is almost sure to create an abnormal desire for breeding, which in winter may be highly dangerous, though in early autumn and spring its use may be advantageous. Simple syrup or honey afford all that is necessary in the production of heat, but where bees are compelled to take nitrogenous food as well, its flesh-forming properties will almost surely dispose to the raising of brood, as it does when taken into the hive as artificial pollen. In strong stocks containing large populations, there is not so great danger arising from late feeding as in those that are weaker in numbers, because the greater heat generated will drive off the moisture introduced with the syrup, and render it more quickly fit for sealing, or for consumption, and it will therefore be permissive to exchange sealed combs from strong stocks with empty ones from weaker, and feeding the strong ones to enable them to fill them. For actual winter feeding, barley-sugar is the best food; it never ought to be necessary, but there always will be some who cannot find time or inclination to attend to their bees at the right time, and they necessarily have to fall back upon a substitute for food that should be already in the cells. The worst feature in barley-sugar is that, if given in quantity, it liquefies on exposure to the air, often faster than the bees can take it, and makes a mess, and if given sparingly, it may happen that the bees will starve through inability to take it at all. Perhaps the best way to administer it is to let it partly liquefy into a condition of toughness, and feed by the bottle through close canvas.

Heat-retaining Hives. — We do not propose to inflict anew upon our readers our views regarding hives; they have been, perhaps, too thoroughly ventilated of late, but will restrict our remarks to their arrangement for winter. With skeps that invariably have their combs built up to the roof, and far down the sides, the

arrangements are as perfect as they well can be; and provided the bees have sufficient food, are fairly numerous with a good queen, and are kept dry, little harm can happen to them. The bees will be snug in a nest of their own making, they will have stored their food in a proper way, or if under pressure of circumstances they have stored it unwisely, the fact that they will be living between certain of the combs which will be up to the crown and partly down the walls, will exercise little influence beyond them. The combs they condense between will lose none of their heat over or around them, they will require no dividers or dummies, because each comb is in itself a divider of the best kind, and they will be sure to take up their winter quarters in the snuggest part of the hive. It is a naturally-built nest, not by any means convenient for the advanced method of bee-keeping, but admirably adapted to the requirements of the bees themselves, whose instinct is right beyond question, and whose method of winter preparation is worthy of the strictest observation by man, who, for his greater benefit, robs them of their food, and forces upon them conditions which are abnormal, and ofttimes highly artificial. For protection all that is needed is a cover that will keep off the rain and snow, and with a means by which the vapours from the bees can escape without condensation, the skep is safe. To permit the escape of the vapours, a wad of of straw over the feed-hole is advisable, and this surmounted by a straw hackle, milk-pan, or a boarded roof, is sufficient. On no account should the hive be closely covered with anything impervious, or it will surely become wet and rotten.

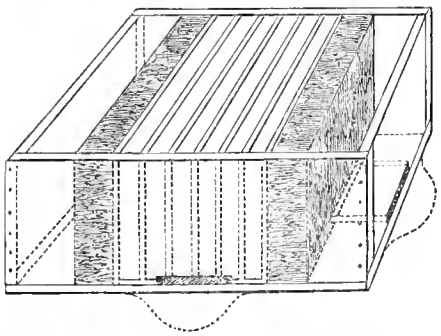
In very cold weather some kind of wrapping may be added, but dryness is the chief essential under general circumstances; and it must not be forgotten that what will keep out the cold will keep out the heat. For very close packing, the entrance of the skep should be temporarily closed. A bottomless bag, doubled inwardly,



should be drawn over it to the floor-board, and between the folds of the bag saw-dust should be poured, so as to fill it out up to the crown of the hive. The bag should then be filled up with shavings or straw, and surmounted by a milk pan, under which has first been laid a handful of loose material, through which the air can circulate, otherwise the hive vapours will condense under the pan and do mischief.

With frame-hives the conditions are of a different character: instead of the combs being built to the hive sides, they are built only to the frames, and these hanging clear permit the heat and vapours from the bees to disperse around them. Many have still a space above the frames, over which circulation of the hive's atmosphere can take place, and the bees, instead of being in an inverted heat-containing chamber, are, as it were, in a suspended basket with heat escaping all round. In the heat of summer this is not greatly harmful, but in winter it is deleterious, and is the cause of many of the disasters that occur. In all cases the space above the frames should be dispensed with, and those around them closed. Above the frames this is effected by the quilt being laid closely on the top bars, and at their ends pieces of wood $\frac{1}{2}$ to $\frac{3}{4}$ of an inch square thrust between, and touching the hive sides, will answer the purpose. There are many ways of doing the same thing, thin strips of wood or vulcanite between the combs, or short pieces of rope, or india-rubber tubing, between the frame ends, will do; or thin boards slid in between the frames and the hive walls, and wedged close up to the former, will answer; as indeed will any means by which the bee-nest may be made more like that which the bees build naturally, viz., that there shall be no perceptible circulation of the atmosphere above or around the combs. The upper half of each pair should form a chamber from which the heated air and vapours can only gradually ascend through the quilt or cushion upon them, to be blown out of the ventilators in the roof.

The combs having been adjusted as before



suggested, it will only be necessary to place division boards on each side of them, or, preferably, chaff cushions, as being more retentive of heat. We give a woodcut showing the ar-

rangement, whether for hives with frames across, as in the Woodbury hive, or from back to front, as in the Combination or Irish Hive. The arrangement in the latter case demands a means of passing from the entrance through, under the chaff cushion, which is a frame of four pieces of wood with canvas on both sides and chaff, or, as later ideas, cork-dust or sphagnum moss, stuffed between. We would advise that the cushions be made with an entrance-way at bottom, and that a perforated zinc tunnel be laid from the hive entrance to it, which will afford a means by which the wind blowing against the hive front will be dispersed in the ante-chamber instead of driving through the brood-nest. The entrance-way in the cushion at back may be used as a means of feeding in the rear chamber in perfect security from outside enemies, or may be stopped up at will. With needy stocks the back cushion may at any time give place to a frame filled with sugar-cake, or in the spring with flour-cake, when breeding will be both legitimate and desirable.

Wintering in Cellars.—With the bees and combs arranged as suggested, bees may be safely wintered in dark cellars, but on no account must the entrances be closed with perforated zinc, or anything that will confine the bees. In a perfectly dark room, with the temperature down to 40° Fahrenheit, they will pass a long night of several weeks' duration with safety, but if the temperature rises a few degrees they will become uneasy, and should be set out on fine days for a flight, always being placed on their own stand. Wintering in cellars precludes the necessity for packing with cushions, but the temperature must be kept down, and no gleam of light allowed to enter; and again we say, they must not on any account be confined to their hives.

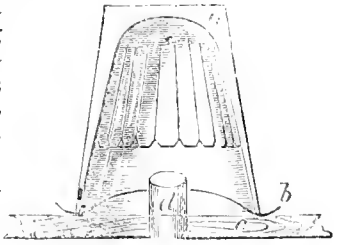
Winter Passages in Combs.—These may be made by pushing a narrow knife straight through and twisting it round, withdrawing with it the removed portions of honey and comb, which may be given to the bees. With the wooden-based foundation, which is extensively in use, notwithstanding late explained failures, holes may be cut eye-shaped with a sharp pen-knife with very little trouble, and if it be believed that the bees will immediately rectify any unevenness that may occur, the knife is a sufficient instrument. In cutting through sealed honey some will be sure to run, and appear 'messy,' but as the bees will clear it up in a few minutes it should not be a difficulty in the way. Where a clean round hole is desired, a centre-bit offers the readiest means of making it. Perhaps in future it would be well to make holes in the wooden foundation ere sending it out.

To prevent the necessity for cutting combs some prefer to lay two pieces of sticks, half an inch apart, above the frames, under the quilt, to give the bees the means of getting over the combs, instead of through them, but we do not like the principle, as it destroys the retentiveness of each individual space above the winter cluster.

Moving Bees to Sheltered Situations.—We feel bound to caution our readers against the removal of hives 'to more sheltered situations,' except they be dark rooms or cellars, as before alluded to. Many kind-hearted bee-keepers, seeing their hives exposed to a strong blast, perhaps accompanied with driving snow or rain, inconsiderately removed them 'round the corner,' or 'into a covered shed,' for protection, where they leave them, forgetting that the bees on reawakening to activity will, after flying, return to the spot where they originally stood, and very many will be lost.

Upward Ventilation.—The quilt properly arranged affords excellent steady ventilation, and is all-sufficient. We have, however, received sundry suggestions of 'new ideas' (?) for condensing, but it will save the trouble of patenting the articles if we refer them to that published in Vol. I. of *Bee Journal*, p. 193, of which we reproduce the woodcut:—

'It almost explains itself—*a* is an ale glass, *b* is a piece of lead or zinc battered into the dish form shown, and having a piece of tubing lined with woollen cloth, fitted into its centre to afford means of exit through the crown-board *c*, at the feeding hole *d*. The warm moist air ascending into the glass condenses on its sides and runs down into the dish *b*, whence it may be emptied away by the bee-keeper.'



LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The sixth annual exhibition of the Lincolnshire Bee-keepers' Association was held in the Cedar Grounds, Louth (kindly lent for the occasion by J. Bennett, Esq.), on Thursday September 8th.

It is gratifying to learn that during the present year there has been a great awakening in Louth on the subject of bee-keeping. This, no doubt, is owing to the indefatigable efforts of Mr. George Bywater, the Local Honorary Secretary; and to Messrs. W. Forman and H. O. Smith, who have also, conjointly with Mr. Bywater, constituted a local committee to represent the Lincolnshire Association. Since the announcement of the fact that this year's exhibition was to be held in Louth, from forty to fifty persons in the vicinity have joined the Association, and the inhabitants generally have responded liberally to the prize fund.

The laborious and responsible duties of the Lincolnshire Bee-keepers' Association are conducted by R. R.

Godfrey, Esq., of Grantham, who inspires all the secretaries of the local districts with a portion of his own enthusiasm; and it must be with no small degree of complacency that he is enabled to look back upon the complete success that has attended the exhibition at Louth this year.

The entry in the exhibition was a very large one: the number of exhibitors exceeding by four those in the exhibition of the British Bee-keepers' Association recently held at the Horticultural Society's Gardens, South Kensington.

A conversazione was held in the Town Hall on Wednesday evening, when there were various interesting exhibits connected with bee-culture: such as bees in observatory-hives, supers of honey in the comb, diagrams illustrating bee life, microscopical examination of the anatomy of the bee and the economy of its life, &c. After some time had been spent in the examination of these curiosities, the more formal proceedings of the evening commenced by the Rector of Louth (Rev. Canon Wilde) taking the chair.

Canon Wilde said he was there to introduce to a Louth audience the Lincolnshire Bee-keepers' Association, which was one of twelve provincial societies affiliated with the British Bee-keepers' Association, whose headquarters were in London. He was not practically acquainted with bee-keeping, but as a clergyman he took an interest in anything which had for its object the more humane treatment of any of God's creatures. Besides teaching the inhumanity and wastefulness of destroying the bees while securing the honey, the Association wished to present to cottagers and working people the fact of the lucrative result following the keeping of bees. The stock-in-trade required was exceedingly small, but the income was disproportionately large considering the outlay.

J. G. Desborough, Esq., of Stamford, alluded to the length of the life of the bee. The life of the working-bee in the height of summer did not reach one month, while at other seasons it reached seven or eight months. He had personally tested the duration of the life of the drone and the worker, but not of the queen-bee. In endeavouring to ascertain the length of life of the last-named, he was able to keep a queen-bee for five years and four months, and then he lost her; but whether she died or met with an accident he did not know. In this case he had the hive in his bed-room. A populous hive would contain from 60,000 to 100,000 bees, and it was a marvel what became of so many. There would only be from 20,000 to 30,000 during the winter, and at the arrival of spring only 6000 or 7000. It would be seen, therefore, that the bee-keeper would require to make his calculations on this knowledge, as if the hive were reduced to too low a number in the spring, the queen could not carry on breeding operations sufficiently rapidly, and as a consequence the hive would either die out, or have to remain until it was warm enough to carry on the ordinary operations. If, however, the hive was sufficiently populous, the honey getting went on prosperously. If the breeding extended until the month of September, sufficient bees would be bred to carry the work of the hive over until the next March or April; but if it ceased earlier, the hive would be in a very precarious condition. This knowledge was of the greatest importance to bee-keepers. The old-fashioned plan was for the cottager to test the weight of his hives in the autumn, and thereby judge whether they were populous enough to endure the trials of the winter. Any deemed not sufficiently populous were put over a hole in the ground in which was some ignited sulphur, and the whole hive of bees destroyed. The scientific bee-keeper knew better than to act like this; and hence had arisen a traffic in these condemned bees, which many cottagers disposed of at so much per pound. Although the queen laid thousands of eggs in the course of a day, it was highly important to have a late breeding each year, in order to have the hive in good condition the next spring. The introduction of the Ligurian bee into this country a few years ago had been of great use in testing the duration of the life of bees. The Ligurian bee was of different colour to the English variety; and it had been satisfactorily proved that within four or five months of the substitution of a Ligurian for an English queen in a hive, not one of the old brown bees would be left, but all would be of the Ligurian variety. In 1853 the speaker read a paper before the Entomological Society of London, gaining a prize for his essay. Although this was many years before the introduction of the Ligurian bee, when that variety came to be introduced it was highly satisfactory for him to find that such experiments as instanced above had fully established the truth of the conclusions arrived at by his personal observations, and contained in his paper written in 1853. In urging everybody present to commence bee-keeping, Mr. Desborough intimated that it was by no means necessary that the hives should be in a garden, or in proximity to the fields, as he knew of one bee-keeper who kept his hives on the roof of a house in Holborn, in the centre of London, and they prospered well.

T. W. Cowan, Esq., Chairman of the British Bee-keepers' Association, was next called on to speak. His remarks were particularly in advocacy of the bar-framed hive, and in recommendation of the discarding of the straw skep. The cottagers who used the latter usually retained the old stock, destroying the swarms and taking their honey. This practice was both inhuman and wasteful. Every comb in the bar-framed hive was moveable, and the advantage of this was fully explained. Under the old system the hive had to be turned up and examined. In each frame a wax-foundation was laid for the comb to be built upon, and as each frame was filled it could be removed, and the honey extracted. Thus the comb was retained, a most material advantage, as every pound of comb retained saved nearly 20 lbs. of honey, as the bees while building the comb consumed instead of storing honey. Another advantage of the bar-framed hive was that any number of frames could be put in for use according to the size of the swarms. The frames could also be divided into sections for the storing of honey, which were removeable at will. The number of frames could also of course be increased or diminished as circumstances required. The Lincolnshire Association was doing a good work in endeavouring to secure the adoption of the bar-framed hive. Many cottagers raised objections, such as the greater expense, but as a matter of fact they could be procured for a very small sum.

W. Carr, Esq., of Newton Heath, Manchester, was the next speaker. He urged all to attend the morrow's exhibition, and recited some verses illustrating the instinct possessed by the bee. The regularity in the construction of the cells of the comb had puzzled mathematicians, and been the means of exposing some of their errors. As an instance of the importance of preserving the comb while extracting the honey, Mr. Carr stated that a bee consumed 1 lb. of honey in the time that it made 1 oz. of comb.

The Rev. J. L. Sisson, of Edingthorpe, Norfolk, followed, and spoke of the traffic in Ligurian bees. He gave an instance of the facility with which bees were handled. A Ligurian queen, which he purchased at the exhibition at South Kensington in July, was placed in two or three different hives before he reached home and put in one of his own. He had met with a very curious example of bee-driving while he was travelling the other day. A man, having the appearance of a cottager, told him that a relative of his, near Wisbeach, having become impressed with the inhumanity of destroying the bees by means of sulphur, had inverted his straw hives in a vessel of water, allowing the water to come half

way up the sides of the hive. He then placed a new hive over the bottom of the old one, and the bees all sought refuge in the upper hive. He was then able to take the honey from the old hive. The man appeared to relate to him the incident in good faith, and he had no reason for disbelieving him, notwithstanding the novelty of the idea. The relation of this new mode of driving excited great amusement amongst the apiarians present.

T. F. Allison, Esq., was then invited by the Chairman to offer a welcome to the members of the Society visiting Louth. He was unaware of any qualification being possessed by him for performing such a duty, but he certainly had been in years gone by a bee-keeper. He wished to congratulate the Association on visiting Louth. He felt deeply indebted to these gentlemen who advocated its claims on our sympathy, for their instruction, and their invitation to become bee-keepers and thus fill their pockets. Their eloquence really led him to the conclusion that anybody who did not take their advice would be very foolish.

The Rev. D. W. Pennell, of Swansea, acknowledged Mr. Allison's congratulations. The Secretary, Mr. Godfrey, had said he (the speaker) was the father of the Association. He must, however, repudiate the paternity. If anyone was the parent of the Society it was Mr. Godfrey. He would advise all present to become members. He once visited a cottage near Grantham, and found a person killing his bees to obtain the honey. He made suggestions to him which induced him to use some old boxes as 'supers,' and from those, in one season, he got 58½ lbs. of honey, which he disposed of at 1*s.* 3*d.* per lb., still retaining his hives untouched.

Mr. Cowan proposed a vote of thanks to the Chairman, which Mr. Desborough seconded.

In acknowledging, the Chairman said he should be happy to subscribe to the funds of the Association.

The Artillery Band was in attendance, and played selections at intervals through the evening. During an interval refreshments were introduced in the form of tea, coffee, sandwiches, buns, &c.

The attendance on Thursday was very large, and the weather was brilliantly fine. The scene was altogether a novel one for Louth, and the various tents were minutely inspected with curiosity and interest both by young and old. There were immense exhibits of honey, both in jars and in the comb. Mr. Wm. Forman, of Louth, winner of the champion cup, showed 364lb. Mr. G. Bywater, Mr. H. O. Smith, and other residents had also large exhibits. There were, in addition, fine specimens of wax; also of liqueurs, cakes, &c., made from honey. Mr. Bywater showed a very pretty and useful hive of his own design, and Mr. Smith a useful bar-framed hive, showing how a substantial one could be easily manufactured out of packing-boxes for the small cost of 1*s.* 10*d.* each. Considerable interest attached to the 'driving' tent, and to ordinary observers this was, perhaps, the most agreeable part of the day's pleasure. Mr. S. J. Baldwin, of Bromley, the expert of the British Bee-keepers' Association, was engaged in driving bees during the day, and so easily and harmlessly did he handle his subjects that those might be excused who thought he had a charm about him. To prevent any such erroneous impression, Mr. H. O. Smith and others voluntarily, and equally harmlessly, ventured to drive the bees. In all respects the Show, it may safely be asserted, was most successful, the number of exhibitors and visitors being something like double those of any previous year. It is calculated that there were nearly 2000 persons assembled at one time on the Cedar Grounds. The Artillery Band was in attendance. The following is a list of prizes awarded, the judges being for classes 1, 2, 3, 15, 16, 17, 18, 19, and 20, Mr. T. Cowan, Mr. H. T. Yates (Grantham), Revs. W. V. Turner and J. L. Sisson; for classes 4 to 14, the Rev. D. W. Pennell, Mr. C. N. Abbott (Southall), and Mr. W. Carr; and for classes 18 to 20, Dr. Russell (Lincoln), Mr. Desborough (Stamford), Mr. Wm. Bolton (Grantham), and Mr. G. Brett (Grantham):—

Bees.—Ligurian: 1*l.* to Miss Carline, Lincoln; and 10*s.* to Mr. J. Baldwin, Bromley, Kent; four entries. English: 1*l.* to S. Maples, Spalding; and 10*s.* to T. Sells, Uffington; seven entries. Any distinct variety other than Ligurian or British black: 1*l.* to T. Sells (Canadians); and 10*s* to Messrs. Abbott Bros., Southall (Syrians); two entries.

Honey.—Largest and best exhibition of super honey the produce of one apiary: 1*l.* to W. Forman, Louth; 15*s.* to J. Walton, Weston, Leamington; 10*s.* to W. Sells, Uffington; and 7*s.* 6*d.* to A. P. Russell, Lincoln; eight entries. Glass super, over 12lb.: 15*s.* and 10*s.* to J. W. Bickley, Melton Mowbray; and 5*s.* to W. Martin, Wycombe; nine entries. Glass super, under 12lbs.: 10*s.* to J. W. Bickley; 7*s.* 6*d.* to T. Sells; 5*s.* to H. Tuck, Upwell; 2*s.* 6*d.* to G. W. T. Melbourn, Nocton Heath; and current volume of *B. B. Journal* for best exhibit by a cottager (given by Mr. R. R. Godfrey, Grantham) to J. Willey, Southrey; fifteen entries. Super of honey: 10*s.* to J. Walton; 7*s.* 6*d.* to T. Sells; 5*s.* to J. Jackson, Boston; 2*s.* 6*d.* to T. Sells; and bar-frame hive for best exhibit by a cottager (given by Mr. G. Bywater, Louth) to W. Edwards, Bardney; thirteen entries. Twelve 1lb. sections of comb honey: 15*s.* to Mr. Melbourn; 10*s.* to C. L. Massingberd-Mundy, East Keal; and 7*s.* 6*d.* to J. Walton; thirteen entries. Twelve 2lb. sections of comb honey: 1*l.* to J. Walton; 15*s.* to W. Forman; 10*s.* to H. Tuck; and 7*s.* 6*d.* to T. W. Cowan, Horsham; ten entries. Largest and best super of honey by a cottager or artisan: Bar-frame hive, crate of 21 sections, and a dozen glass honey jars (given by Messrs. W. and T. Sells, Uffington) to J. Jackson; 2nd, J. Willey; two entries. Honey in sections, each section not more than 2lb., and total weight not less than 20lb. (prizes given by the British Bee-keepers' Association): Silver medal to A. P. Russell; and bronze medal to Rev. W. V. Turner, Bardney; two entries. Straw super: J. W. Bickley and T. Sells equal; two entries. Glass of extracted or run honey, not less than 5lb.: 10*s.* to H. Smith, Louth; 7*s.* 6*d.* to T. F. Rippon, Crowland Farm; 5*s.* to S. Lee, Coningsby; and 2*s.* 6*d.* to T. F. Rippon; thirty-five entries. Best and largest exhibition of extracted or run honey: 1*l.* to S. Lee; 15*s.* to J. W. Measures, Long Sutton; 12*s.* 6*d.* to T. Roberts, Belvoir; 10*s.* to W. Forman; 7*s.* 6*d.* to J. Walton; 5*s.* to Miss Isabella Deedes, Haydour; and a honey slinger for best exhibit by a cottager (given by Rev. R. B. Bayly) to J. Willey; fourteen entries. Beeswax: 5*s.* to Messrs. Abbott Bros.; and 2*s.* 6*d.* to W. Sells; nine entries. Liqueur, wine, or mead made from honey, with the recipe attached: 10*s.* to W. Sells; and 5*s.* to H. Tuck; four entries.

Hives.—Hive for observation purposes: 30*s.* to Abbott Bros.; 1*l.* to S. T. Baldwin, Bromley; and 15*s.* to J. W. Measures, Long Sutton; three entries. Practical hive, on moveable comb principle, for surplus honey and for wintering: 1*l.* to Abbott Bros.; 15*s.* to Mr. Baldwin; and 10*s.* to Mr. Young, Perth; six entries. Practical hive, on the moveable comb principle: 15*s.* to Mr. Blake, Halton Holegate; 10*s.* to Mr. Baldwin; and 7*s.* 6*d.* to Abbott Bros.; five entries. Complete hive, on moveable comb principle; 15*s.* to J. Best, Boston; and 10*s.* to Mr. Blake; nine entries. Best and cheapest straw hive; 5*s.* to W. Martin, Wycombe; and 2*s.* 6*d.* to J. Woodcock, Walesby; three entries. Cheapest, neatest, and best supers for harvesting honey in the comb in a saleable form: 10*s.* to Abbott Bros.; 7*s.* 6*d.* to Mr. Melbourn, Nocton Heath; and 5*s.* to T. Sells, Uffington; four entries. For practical feeder, with a recipe for making syrup: 7*s.* 6*d.* to Abbott Bros.; 5*s.* to Mr. Melbourn; and 2*s.* 6*d.* to T. W. Cowan; five entries. Honey

extractor: 1*l.* to J. Walton, Weston; 10*s.* to Mr. Cowan; and 7*s.* 6*d.* to Abbott Bros.: five entries. Pair of glass jars: 7*s.* 6*d.* to Abbott Bros.; and 5*s.* to the York Glass Company; 3rd, Mr. Melbourn: three entries. Three entries. Crates for safe conveyance of comb honey: 7*s.* 6*d.* to Mr. Cowan; and 5*s.* to Mr. Melbourn; two entries. Complete collection of hives and bee-furniture: 2*l.* to Abbott Bros.; and 30*s.* to Mr. Young; two entries. New invention calculated to advance the culture of bees: 10*s.* to Abbott Bros.; 7*s.* 6*d.* to Mr. Melbourn; and 5*s.* to Mr. Cowan; nine entries. Microscopic slides; 1*l.* to Mr. Godfrey, Grantham; two entries. Collection of natural objects, models, and diagrams connected with apiculture: 1*l.* to Abbott Bros.; three entries. Best and largest display of honey and pollen-producing plants: 1st prize, 'Abbott's Little Wonder,' R. R. Godfrey, Grantham.

The Association's Silver Cup.—For this award there was a very close contest. Mr. Sells has won the cup four successive years, retaining the first one, and bidding fair to finally obtain this also. But this year there were some very large entries, and the judges had considerable difficulty in deciding the award. This prize is open to members only, who must be resident in the county, and is offered 'for the best and largest exhibition, in all or any of the honey classes, of honey taken without destroying the bees.' The Judges finally awarded this 'blue ribbon' of the day to Mr. W. Forman, of Louth.

There were 68 exhibitors, and over 200 exhibits, and nearly one and a half tons of honey were shown. Altogether it was a very successful meeting.

The excellent character and entire success of the Exhibition are in a great measure owing to the assiduous labours of the local managers, Messrs. G. Bywater, W. Forman, and H. O. Smith; while the courteous and experienced county Secretary, Mr. Godfrey, has thrown an immense amount of energy into the concern, and brought the management of every department to a successful issue. The following experienced apiarians have also rendered valuable help:—Dr. Measures, Long Sutton; Dr. Russell and Dr. Carline, Lincoln; Rev. J. L. Sisson, Edingthorpe; Rev. D. W. Pennell, Swansea; Mr. Cowan, Horsham; Mr. Bolton and Mr. Brett, Grantham; Mr. Yates and Mr. Desborough, Stamford; Mr. Sells, Uffingham; Mr. Barnes, Londonthorpe; Mr. Abbott, Southall.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION: A SUGGESTION.

Kindly allow me, through your *Journal*, to remark that from the frequent application for the loan of my die of the queen-bee to use as a heading to note-paper and envelopes, I am led to think it might be well if members of the L. B. K. A. would adopt its use generally, and have full postal address printed. In this case I should be happy to arrange for a supply on the promise that half a dozen or more members would each order not less than five quires of paper and one hundred envelopes, the larger the quantity ordered the less would be the cost.—R. R. Godfrey, *Hon. Sec.*

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The success which has attended this recently-formed Association is of a very gratifying character, and has fully realised the expectations of its promoters. The members of the Association now number upwards of 160, as against 60 a year ago; and the influence which the Association is exercising throughout the county was shown by the excellent exhibition of hives, bees, honey, bees-wax, bee-gear, &c., which was held under its auspices, and in connexion with the annual meeting of the Warwickshire Agricultural Society at Rugby. Amongst those who visited the exhibition were: Lord Leigh (the President of the Association), Lady Leigh, the Marquis of Hertford, the Earl of Denbigh, Viscount Newport, M.P., Sir Eardley Wilmot, M.P., Mr. Newdegate, M.P., and Mr. Bromley-Davenport, M.P. At the dinner of the Agricultural Society Sir Eardley Wilmot, in the course of a speech dealing with the present depressed state of agriculture, dwelt upon the great loss this country was sustaining every year by importing honey, and which might be avoided by an improved and increasing cultivation of bees at home. The prizes were distributed by the Marquis of Hertford, who was attended by many influential gentlemen interested in the Society's work. Appended is a list of the principal awards:—Best exhibition of super honey from one apiary: 1st, J. Walton, of Weston; 2nd, A. Sale, of Atherstone; 3rd, S. Timms, of Killsby. Best sectional super over 20 lbs., combs separable and not over 2½ lbs.: 1st, J. Walton, Weston; 2nd, J. Walton, Weston; 3rd, C. Shuffle-botham, Coventry. Best sectional super under 20 lbs., combs not under 1 lb. each: 1st, S. Timms, Kilsby; 2nd, Rev. J. C. Sale, Dymock; 3rd, J. Walton, Weston. Best single super in wood, glass, or wood and glass combined: 1st, J. Walton, Weston; 2nd, A. Sale, Atherstone; 3rd, W. Daniels, Newbold. Best 3 lbs. bees-wax: 1st, Rev. J. C. Sale; 2nd, J. Walton, Weston. Best and largest exhibition of extracted honey in glasses, not to exceed 2 lbs. each: 1st, Rev. J. C. Sale, Dymock; 2nd, J. Walton, Weston; 3rd, S. Timms, Kilsby. Best and strongest straw skep of bees: 1st, J. Walton, Weston. Best and cheapest hive for cottagers' use, on the moveable comb principle, complete with cover, floor-board, and facilities for spring honey: 1, Green & Sons, Rainham, Kent; 2nd, Daniels, Newbold; 3rd, C. Foxon, Leicester. Best and largest collection of hives, bee-furniture, bee-gear: 1st, T. B. Thomson, Birmingham; 2nd, J. Walton, Weston. Extra prizes were given to R. F. Leake, Long Buckly; and to James Walton, Weston; and a certificate of merit for progress in apiculture to Mr. James, Sutton Coldfield.

DORSETSHIRE BEE-KEEPERS' ASSOCIATION.

The annual exhibition of the Sherborne Horticultural Society was held on Wednesday, August 31st, in the grounds of Sherborne Castle, by the kind permission of G. D. W. Digby, Esq. One of the principal features of the day was the tent which was set apart for the annual exhibition of the Dorset Bee-keepers' Association. The progress made in apicultural matters in the county of Dorset since the first bee show was held at Sherborne six years ago has been remarkable. The schedule contained nineteen classes, with over forty prizes, including two medals offered by the British Bee-keepers' Association. The entries were more numerous than on any former occasion, and the quality of some of the exhibits has seldom, if ever, been excelled. The principal display of hives and bee furniture came from Messrs. Abbott Bros., of Southall, who have a world-wide reputation, and from Mr. James Lee, of Bagshot, Surrey, who has exhibited at the local shows on former occasions. It will be seen by the list given below that the honours were pretty equally divided between them. Several local manufacturers were also well represented, amongst the number being Mr. C. W. Downes, of Blandford, whose neat, cheap, and well-made goods attracted attention, and Mr. Cox, of Whitchurch, who boldly sent his handiwork to compete with the well-known Southall and Bagshot firms. The observatories contributed by Messrs. Abbott, Antell, Dunman, and Brown (that belonging to the last not being for competition), attracted much

attention. Two were stocked with beautiful Italian bees, of which Virgil says:—

> 'The better brood, unlike the common crew,
> Are marked with royal streaks of shining hue.'

The movements of the queen were watched with great interest. The principal feature of the show was the honey, nearly half-a-ton of which was placed upon the tables. Mr. Antell, of Puddletown, who won the silver medal, sent 350 lbs., mostly in 1-lb. and 2-lb. sections, the whole being splendidly filled with beautiful straight white combs, almost every cell of which was capped. The Rev. G. H. Wynne, of Whitechurch, took the bronze medal with a grand pile of larger sections, making up a gross weight of 290 lbs. There was also a large show of run honey. The cottagers did not come out strongly, and the committee will have to devise some plan for drawing them out more freely. Still, it was a marked improvement to see two lots of good sections in this class, as well as two of Lee's excellent bar supers very fairly filled.

It should be mentioned that Mr. Dunman, who had won the silver medal on several occasions, did not compete for it this year.

The judges were the Rev. H. Everett, Dorchester; Rev. L. W. Stanton, Combe Keynes; Mr. W. N. Griffin, Alphington, Devon; Mr. J. Brown, Maiden Newton; and Mr. C. Tite, Yeovil, who made their awards as follows:—

Open Classes.—Collection of hives, bee furniture, and bee-keeping apparatus—First, 1*l.*, and second, 10*s.*, Messrs. Abbott Brothers, Fairlawn, Southall, Middlesex, and Mr. J. Lee, Bagshot, Surrey (equal). Bar-frame hive, for general use—First, 1*l.*, Mr. J. Lee; second, 10*s.*, Messrs. Abbott Brothers. Bar-frame hive, for cottagers' use—First, 10*s.*, Messrs. Abbott Brothers; second, 7*s.* 6*d.*, Mr. J. Lee; extra, Mr. J. Cox, Whitechurch, Blandford. Straw skep for depriving purposes—2*s.* 6*d.*, Mr. C. W. Downes, Blandford. Super for harvesting honey in the comb in a saleable form—First, 10*s.*, Mr. J. Cox; second and third, Mr. J. Lee. Honey extractor—First, 10*s.*, Mr. C. W. Downes. Observatory hive, stocked with bees and their queen—First, 1*l.*, Mr. T. Stickland, Puddletown, Dorchester; second, 10*s.*, Messrs. Abbott Brothers.

Local Classes.—Exhibition of super honey from one apiary—First, 1*l.*, Mr. J. Antell, Puddletown, 315 lbs.; second, 10*s.*, Mr. W. H. Dunman, jun., Troytown, Dorchester, 290 lbs. Exhibition of super honey in comb from one stock of bees, under any system or combination of systems—First, 1*l.*, Mr. W. H. Dunman, jun., 80¼ lbs.; second, 10*s.*, Rev. G. H. Wynne, Whitechurch, 73½ lbs., and Mr. J. Antell (equal). Super of honey, the super to be of wood, straw, or of wood in combination with glass or straw, not sectional—First, 10*s.*, Mr. W. H. Dunman, jun., and Mr. S. Pond, Blandford (equal); second, 5*s.*, Mr. Wallis, Charlton Cottage, Blandford. Exhibition of comb honey in sections—First, 1*l.*, Mr. W. H. Dunman, jun., and Mr. J. Antell (equal); second, 10*s.*, Mr. T. Stickland. Eight sections of comb honey, not to be gathered from heather—First, 15*s.*, Mr. T. Harvey, Shroton, Blandford; second, 10*s.*, Rev. G. H. Wynne; third, 5*s.*, Mr. T. Harvey. Largest and best collection of comb honey in sections—First, silver medal, Mr. J. Antell, 350 lbs.; second, bronze medal, Rev. G. H. Wynne, 274¾ lbs.; third, certificate, Dr. Slade, Puddletown, 50 lbs. Largest and best exhibition of run or extracted honey in glasses—First, 10*s.*, Mr. T. Stickland; second, 5*s.*, Mr. W. H. Dunman, jun.; third, 2*s.* 6*d.*, Mr. J. Antell. Sample of bees' wax—First, 5*s.*, Mr. T. Stickland.

Cottagers' Classes.—Exhibition of honey-combs in supers—First, 7*s.* 6*d.*, Mr. J. Sherring, Puddletown; second, 5*s.*, Mr. J. Woodland, Troytown, Dorchester. Super of honey, the super to be of wood in straw, or wood in combination with glass or straw—First, 5*s.*, and second, 2*s.* 6*d.*, Mr. J. Sherring. Largest and best exhibition of run or extracted honey in glasses—First, 5*s.*, Mr. J. Sherring; second, 2*s.* 6*d.*, Mr. J. Woodland.

The honey fair was tolerably well patronised. The principal exhibitors who were present had disposed of every pound of honey they had to spare before the show closed, and several orders were booked for future supply. This fact alone speaks volumes for the prospects of bee-keeping.

The manipulations conducted by Mr. Antell, the expert of the Dorset Association, were very interesting, and many persons thus learnt how to transfer their bees from old skeps to the new and improved bar-frame hives. Seeing how freely Mr. Antell handled thousands of living bees, many of the spectators (including several ladies and children) went into the enclosure where the operations were performed, and, after seeing all they wished, went out again unstung. Explanations of the manipulations were given by the Rev. L. W. Stanton, Mr. J. Brown, and Mr. C. Tite, who answered the scores of questions asked as to bees and their management.

Considerably over 1000 persons entered the tent, and Mr. Dunman and his co-workers are to be heartily congratulated upon the successful result of their labours —*Pulman's Weekly News*, Sept. 6th.

SURREY BEE-KEEPERS' ASSOCIATION.

The third annual exhibition of this Association was held on Wednesday, the 14th of September, at the Firs, London Road, the residence of Mr. H. Parson, surgeon, by kind permission of that gentleman. The exhibition was not an extensive one by any means, as was to be expected, seeing that the Association is yet in its infancy, but still an improvement was observed upon that of 1879, held at Guildford, though it did not excel the Croydon Show of last year. There were 19 exhibits. The prize exhibits were shown in a large tent supplied by Mr. A. Bull, of High-street. Besides these a number of apiarian implements were shown, not for competition, amongst them being a pair of octagon supers and sealed honey in comb, by Mr. Craig, of Camberley; a set of sectional supers of last year's sealed honey, by Mr. W. H. Clarke, of Merton. Mr. H. Parson showed a large collection of Deeside, Abbott's, and Philadelphian hives, also an ingeniously-constructed bar-framed hive, made by himself at the small cost of a shilling, and highly commended at Kensington and Croydon. Mr. Parson has himself a large number of hives, kept in the grounds, and was kindly ready to explain, to cottagers more particularly, the mode of constructing his cheap bar-framed hive, in making which he has displayed much skill and judgment. Mr. Joy exhibited two straw hives with supers, and other exhibits comprised hives of various descriptions, whilst last, but not least, the Earl of Onslow, the patron of the Association, and Captain Campbell had on view a number of live bees. A great attraction was the tent of the British Beekeepers' Association, in which an expert of the Association gave practical demonstrations of bee manipulation, and explained to the interested spectators the best method of treatment of bees.

The judges were Mr. T. W. Cowan, of Horsham, and Mr. S. A. Sholl, of Godalming, and their awards were as follows:—

Best stock of bees in a bar-frame hive (for cottage members): 1, a hive of bees, James Elson, Farncombe; 2, 12*s.* 6*d.*, H. Edgington, Pound Hill, Godalming. Best stock of bees in straw hive (for Surrey cottagers): 1, Surrey cottagers' bar-frame hive, J. Elson. Best exhibition of honey from one apiary (for all members): 1, 10*s.*, Captain Campbell; 2, certificate, Mr. F. H. Lemare. Collection of honey in supers: 1, silver medal, given by the British Bee-keepers' Association, Captain Campbell; 2, 10*s.*, Mr. F. H. Lemare; 3, certificate, Rev. J. C. Harkness, West Clandon. Best twelve 1lb., or six 2lb.

sectional supers (for members other than cottagers): 1, 10*s.*, Mr. H. Parson: 2, 5*s.*, and certificate of the British Bee-keepers' Association, Mr. W. Marriott, Woodside Green, London: h c, Mr. F. H. Lemare. Best six 1lb. sectional supers (for cottage members): 1, bronze medal, given by the British Bee-keepers' Association, J. Elson: h c, Matthew Freeman, Slinford. Run honey, twelve 1lb., or six 2lb. glass jars (for members only): 1, 10*s.*, Mr. F. H. Lemare; 2, 7*s.* 6*d.*, Matthew Freeman; 3, certificate, J. Elson. Exhibition of pure bees' wax, of not less than 2lbs. weight: 1, 5*s.*, M. Freeman.

The cottagers' prizes were handed to the winners by Mrs. Parson at the close of the exhibition, that lady accompanying the presentation with some kind and encouraging remarks to the fortunate recipients.

WILTS BEE-KEEPERS' COUNTY ASSOCIATION.

I am glad to announce the formation of another County Bee-keepers' Association, of which I beg to hand you the prospectus. We have already fifty members. I also enclose a programme of the first show we have had as an Association (two others, viz. at Hungerford on June 6 and 7, and Marlborough, Aug. 30, having been got up and carried out by three or four members of our present committee), which was well attended; but, owing to the unavoidably short notice given, the exhibitors were few, however these few made a good display both of honey and hives. Wiltshire is a first-rate county for honey; but of late years not many bees have been kept, and those who have kept them (with a very few exceptions) have till this summer always burnt their bees; but many are now taking to more humane and profitable methods, and joining our Association.

The Wilts Bee-keepers' Association originated among three gentlemen in this neighbourhood, who, finding that the Marlborough and Pewsey Vale Agricultural Show was to be held at Hungerford on June 6 and 7, obtained leave to carry out a bee show. The British Bee-keepers' Association's Tent and expert were engaged, and the show was a success in every way, and awakened much interest in the neighbourhood, and a local bee committee was formed. We next had an invitation to attend the flower show of the Marlborough District Horticultural Society held in Savenake Forest, the seat of a noble resident. Each show led many fresh members to join, and it soon became evident that we must develope into a County, and not remain a mere local society; and so now the Wilts Bee-keepers' Association is an established fact, and will shortly be affiliated to the British Bee-keepers' Association. I need hardly say that we have received every encouragement from the Rev. H. Peel, and other members of the Bee-keepers' Association Committee, whom I had the pleasure of meeting at South Kensington in July.

After our show at Hungerford we got up a screen, and make-shift Bee Tent on the plan of your model at South Kensington, which answered our purpose well, and cost us only about 2*l.*, and some members of our committee undertook the work of 'experts' and lecturers in the Bee Tent, so that another season we shall be able to undertake bee shows at a trifling expense.—E. Burkitt, *Hon. Sec., Wilts Bee-keepers' Association.*

ESSEX BEE-KEEPERS' ASSOCIATION.

The first Exhibition of this Society of Hives, Bee-furniture, and Honey, was held at Brentwood in connexion with the Horticultural Show on Thursday, September 15th, 1881. The number of exhibitors was not large. It is hoped that next year the schedule of prizes will be sufficiently attractive to produce larger entries. The following prizes were awarded:—For the best frame-hive for general use in an apiary—1st prize, Mr. A. Blake, Wickham Market, Suffolk: 2nd prize, Messrs. Green and Sons, Rainham, Kent. For the most economical (best and cheapest) hive on the moveable comb principle for cottagers' use—1st prize, Mr. A. Blake; 2nd prize, Messrs. Green and Sons; extra prize, Mr. G. Wright, Warley, Brentwood. For the cheapest, neatest, and best supers for harvesting honey in the comb—1st prize, Messrs. Green and Sons; 2nd prize, Mr. A. Blake. For the best exhibition of super honey from one apiary—1st prize, Mr. G. L. Wright; 2nd prize, Miss Crosse, Upminster, Romford. For the best super of honey, not being sectional supers—1st prize, Mr. W. Debnam, Chelmsford; 2nd prize, Mr. G. L. Wright. For the best exhibition of run honey—1st prize, Mr. W. Debnam: 2nd prize, Mr. G. L. Wright. Lectures were given in the Bee Tent of the Association by the Hon. Secretary upon artificial swarming, driving, and wax-making. The operations were performed by Mr. W. Debnam, Mr. E. Durrant taking charge of the exhibition tent.

SLINDON HORTICULTURAL SOCIETY.

The first Show of the Slindon Horticultural Society took place on the 15th September, under the patronage of Mrs. Leslie, Sir Peniston and Lady Millbank, Lady Huskisson, Mr. and Mrs. Chas. J. Fletcher, Dale Park, Mrs. Fletcher, Madehurst Lodge, and Madame Belloc, Newlands.

The competition was confined to Slindon and two neighbouring parishes, the prizes ranging from one to ten shillings, to be given for the best cropped and kept garden or allotment, the best vegetables, fruit and flowers. Prizes were added for the best window garden, the neatest cottage, the best-made bread, honey, and needlework. The competition was very keen, there being nearly one hundred competitors. The judges were Messrs. Scott and Moore, the well-known florists of Chichester. The weather being most favourable, the attendance was good. The presence of the expert from the British Bee-keepers' Association, with one of their commodious tents, in which the driving of bees, the transfer of combs and stocks from the straw skep to the bar-frame hive, &c., formed one of the most attractive features of the show: the perfect control exhibited by the expert, Mr. Baldwin, in manipulating the bees, and the valuable information given by him as to their habits, and for the successful management of them under the modern humane system in bar-frame hives, was fully acknowledged and appreciated as evidenced by the constant thronging of the tent all the afternoon. The driving, catching, and exhibiting the queen in so short a time as it occupied, and the transfer of combs from the straw skep to the bar-frame hive, excited much wonder, and not a few of the visitors to the tent were impressed with the idea that there must be some special means adopted to prevent stinging. However, two ladies had the courage to enter the inner part of the tent where the manipulations were proceeding, and one of them actually received a handful of bees, greatly to the astonishment and admiration of the beholders.

Mr. Baldwin's lecture on bees, and practical illustrations of his remarks, were highly interesting to all, and it was generally admitted, with how much ease, under proper management bees could be controlled, as were also the advantages of the modern humane system over the murderous sulphur-pit: and it is to be hoped that the cottagers, whose attendance and interest evinced by them were most encouraging, will, after what they witnessed, look more than they have hitherto done to bee-keeping under the humane system as a pecuniarily remunerative branch of industry. The display of honey, hives, and bee appliances, was not the least interesting part of the show: the honey supers, especially the well-filled 1 and 2 lb. American sections, were much admired, and the cheap and durable twelve bar-frame hive invented by Mr. F. Lyon for the use of cottagers (described in the able paper read by him at the General Annual

Meeting of the British Bee-keepers' Association on the 16th of February last, and referred to in the *British Bee Journal* for March and April), a pattern of which with mode of construction and cost appended was exhibited, and elicited well-deserved encomiums.

The Committee of the British Bee-keepers' Association, with their usual liberality, sent down an excellent bar-frame hive to be given as a prize for the best stock of bees in a straw skep sent in for driving purposes.

In the course of his lecture, Mr. Baldwin remarked that no county in England visited by him appeared more favourable for apiculture than Sussex. I believe this to be the case, and it is to be hoped that following the laudable example of so many other counties in which Bee-keeping Associations have been established, and are doing good work, a Sussex County Bee-keepers' Association will at no distant date be formed specially with the object of increasing the happiness and comfort of the industrious cottagers by encouraging them to cultivate a pursuit at once interesting and pecuniarily profitable. It only needs a few philanthropic and spirited gentlemen to come forward and take the initiative to start such an Association.—F. R. Jackson, *Slindon.*

BEE-KEEPING AT SOMERTON.

At the Somerton Flower Show on Friday, August 26 last, honey was made a conspicuous object, prizes having been offered for the best supers, and it is worthy of note that considerable improvement has taken place in these exhibits. In previous years the cottagers brought their honey in straw skeps; but on the present there were several sectional and other supers exhibited, and naturally the prizes were awarded to them, Mr. William Snow securing first 10*s.* 6*d.*, and Mr. J. Parfit second 7*s.* 6*d.* These may appear trifling efforts as compared with greater shows: but if every rural flower show committee would make similar efforts a vast deal of good would result.

BEES AT THE YARMOUTH FLOWER SHOW.

The Annual fête in connexion with Yarmouth, East Norfolk and Suffolk Horticultural Society, was held in St. George's Park on Thursday, 25th August. One of the principal attractions of the show was the tent of the Suffolk Bee-keepers' Association, which was extensively resorted to by visitors. Mr. S. J. Baldwin, expert to the British Bee-keepers' Association, explained various matters connected with apiaries, and he was assisted in his experiments by the Rev. J. Lawson Sisson, of Edingthorpe, and Mr. Barge. Much delight was expressed by the spectators in the experiments. Mr. Baldwin was quite 'at home' with his busy little protégés, and the various antics which they performed under his skilful manipulation created much amusement. In this tent were also to be seen bees and other exhibits. It was amusing and interesting to observe the bees at work and hear them buzzing in the exes. There were samples of honey, two jars being contributed by Mr. S. Barge; the bees hived on June 20th, and the honey was extracted in the first week in August. A wasp's nest was shown by Mr. A. Daniels, of Market Row, and this was well worth inspecting.

The following prizes were awarded:—Comb-honey: 1st, R. A. White; 2nd, Mrs. E. Soones; 3rd, A. Hill. Comb of honey: 1st, S. J. Baldwin; 2nd, R. A. White. Extracted honey: 1st, R. A. White; 2nd, S. Barge. Best hive: 1st and 2nd, S. J. Baldwin; 3rd, Rev. B. Hill.

Great praise is due to Mr. S. Barge, the honorary secretary, not only for the energy he displayed in the performance of his arduous duties in connexion with the Flower Show, but also for the impulse he has given to the cause of apiculture in the district.

FORFAR BEE-KEEPERS' ASSOCIATION.

The Show of this Association, which has only been recently started, was a very good one indeed.

Miss E. Dick, Bankhead, Cairn, took a first prize for honey in section, with an excellent lot of very fine quality, weighing above 40 lbs. For the best sectional super under 20 lbs., Mr. Thomas Boyd was first with a good lot, and Mr. John Robbie was second with a fine lot, all out of one hive. For the best single super in wood or glass: Miss E. Dick, with a fine, regularly built lot; and the 2nd, of Mr. James Saddler, was also very fine, but not so large. For the best super in straw: the 1st was awarded to Mr. James Nairn, Clecksbriggs, whose exhibit was very fine, clear, and white. There was a good competition in run honey, most of which was taken out by the extractor, and both, in appearance and flavour, presented a strong contrast to the old run honey: the first was awarded to Mr. James Nairn, and Mr. A. Soutar, West Lownie, took 2nd, and Mr. James Cramond 3rd. There were two exhibits of wax, and the first prize was taken by Mr. Alex. Low, Kingsmuir, with the figure of a rabbit. For comb-foundation: Mr. W. Raitt, Blairgowrie, was first, with a very bright lot, having the cell walls well started; and Mr. John J. Kinnaird, Dundee, was second. Mr. James Saddler was awarded the first prize for observatory hives, for a very fine perpendicular hive with three combs hung above each other, with glass on either side, through which the bees can be seen at work. This class formed a great attraction for visitors, and received much attention. For the most complete bar-frame hive, with covering stand, floor-board, and facilities for storing surplus honey: Mr. James Herald, Dundee Loan, was first with a superior hive, and remarkably cheap, at 10*s.* 6*d.* For apiarian appliances: Mr. James Saddler had a well-deserved first prize with a very good collection, which includes an extractor. On Friday afternoon, Mr. James Binny competed in the bee-driving, but, owing to the cold weather, they did not run well. There was a large number of visitors at the show, the amount drawn at the door being 20*l.*, or an increase of 5*l.* on last year. Amongst those who visited the show were: Sheriff Robertson; Ex-Provost John Lowson, Miss Lowson, and Mr. G. Lowson, Beechill; Ex-Provost James Lowson, junr., Hillbank; Mrs. John F. Craik; Rev. Mr. Turner, Kinnettles; Rev. Mr. Okie; Mr. and Mrs. D. Steele, Mr. and Mrs. Warden, Cowiehill; Mr. Ritchie, Sparroweroft; Mr. John Nicoll, Mr. Frank Cargill, Miss Best, Suttieside House; Mrs. Boath, Chapel Park; Miss Gemmell, Edinburgh; Mr. and Mrs. James Lowson; Rev. Mr. and Mrs. Wright; Rev. Mr. and Mrs. Ross; Miss Gibson, Bankhead; Mr. J. Brodie, Mansfield House; Mr. John Wilkie; Mr. and Mrs. R. McNab.

Bee Department.—Best display of honey-comb from one apiary: 1st, Miss Dick, Bankhead, Cairn. Best sectional super, under 20 lbs: 1st, Thomas Boyd, Eassie Station; 2nd, John Robbie, Caldham; 3rd, Mr. G. Skeen, Zoar. Best single super, the first prize of which was presented by Mr. Raitt, Blairgowrie, and won by Miss E. Dick; and the second, which was presented by Mr. J. J. Kinnear, Dundee, and won by Mr. James Saddler, East High Street, Forfar. Best straw super: 1st, James Nairn, Clecksbriggs; 2nd, David Petrie, Greenordie. 6 lbs. run honey: 1st, James Nairn; 2nd, Alex. Soutar, Lownie; 3rd, James Cramond. Best 2 lbs. wax: 1st, Alex. Low, Kingsmuir; 2nd, James Saddler. Six sheets comb foundation: 1st, W. Raitt; 2nd, John P. Kinnear. Best observatory hive: 1st, James Saddler; 2nd, J. Cramond. Most complete bar-frame hive: James Herald, Dundee Road. Best collection of apiarian appliances: James Saddler.

On Saturday afternoon the bee-driving competition was continued by Mr. John Henderson, Dundee Road; Mr. A. Patullo, South Street; Mr. and J. Cramond,

Dundee Loan, Mr. Patullo being the winner, having driven and captured the queen in 16½ minutes. Mr. Cramond was second in 30½ minutes.

The arrangements for the show were of the most complete description, and reflect much credit on the energetic secretary, Mr. J. P. Anderson, and his committee of management.

BEES AT THE BANFFSHIRE HORTICULTURAL SHOW.

A special attractive feature of the exhibition this year was the honey department. Prizes were offered for the first time, and last year, it may be remembered, samples of honey and bee-hives were exhibited only. Yesterday Mr. A. Cockburn, Cairnie, was in attendance, and exhibited his 10s. hive, which gained the first prize—a silver medal—at South Kensington, London, in July last. The first and second prizes for best specimens of drained honey were gained by Mr. William Pirie, station agent, Banff Bridge. A prize for the best specimen of observatory hive was awarded to Mr. Pirie, the only competitor. It was divided into two compartments, and the busy inmates were seen performing their functions to advantage. Mr. Pirie was also awarded the honours for best prepared sample of bees-wax. In each of these departments it is hoped the entries will be more numerous by another season.

BRITISH BEE-KEEPERS' ASSOCIATION.

The usual monthly meeting of the Committee was held at the 'Angel' Hotel, Islington, on Wednesday, September 15th. There were present—Mr. T. W. Cowan, in the chair, Rev. E. Bartrum, Rev. G. Raynor, Mr. C. N. Abbott, Mr. F. Cheshire, J. M. Hooker, and the Rev. H. R. Peel (Hon. Sec.). The minutes of the last meeting were read, confirmed, and signed.

The Balance Sheet for two months, ending August 30, was also read, showing a total income of 285*l.* 0*s.* 1*d.*, and a total expenditure of 282*l.* 15*s.* 11*d.* It was resolved that a notice should be sent to all members in arrear with their subscriptions.

The Secretary reported that Mr. Cowan and himself had an interview with the postal authorities in respect to the transmission of queens by post, and that the following reply had been received:—

'*General Post Office, London,*
7th September.

'Sir,—Referring to your interview with Mr. Blackwood on the 11th ultimo, upon the subject of transmission of queen-bees through the post, I have to inform you that the matter was referred to the practical officers for their opinion, in accordance with the promise made to you by Mr. Blackwood; and that the Postmaster-General, having had before him the report of those officers, cannot but conclude with them in thinking that the Department would not be justified in acceding to the application of the British Bee-Keepers' Association. Mr. Fawcett desires me at the same time to express to you his regret that he is unable to comply with the wishes of the Association in this respect.

'I am, Sir, your obedient servant,
'Algernon Turnor.'

The Secretary also reported that the second edition of *Modern Bee-keeping* was nearly exhausted. Resolved, 'That a copy be sent to each Member of the Committee for revision and for suggestions for the improvement of the third edition, and that arrangements be made at the next meeting of the Committee for its publication.' Votes of thanks were passed to the West Kent Association for the use of their tent, and to the Judges for their services at the South Kensington Show.

The question of the arrangement and making of a Catalogue of books in the library having been discussed, Mr. Cheshire stated that, as his time was fully occupied, he should be glad to be relieved of the duties of librarian. Resolved, That Mr. Cheshire's resignation be accepted, and that a new librarian be appointed at the next meeting.

Mr. Cheshire reported that he had not been able to breed any pure Cyprian queens from the queen placed in his hands by Mr. Jackson. Several Members of the Committee expressed their desire to have queens, and Mr. Cheshire, being desirous of not retaining her, it was resolved that the queen be placed in the hands of Mr. Abbott for the furtherance of Mr. Jackson's wishes.

Authorship of Modern Bee-keeping.

At the Committee Meeting of the British Bee-keepers' Association at the 'Angel' Hotel, Islington, the question of publishing a third edition of *Modern Bee-keeping* came on.

Mr. Cheshire wished to call attention to the fact that certain blocks illustrating the *Manual* were of his drawing, and that an undertaking had been given by Mr. Hooker that they were to remain his copyright: he had no wish to prevent the Association having the use of them, but he did not wish them to be hawked about the country until they had lost their value.

Mr. Peel thought that the Association having paid for engraving them had the right to use them, or do what they pleased with them.

Mr. Cheshire said the engraving entailed only about half the cost of their production; certain of them were his in design and drawing, and he wished the Committee to acknowledge his right to them.

Mr. Peel could admit no such right. If Mr. Cheshire required payment for his share in their production, that could be arranged.

Mr. Hooker denied that he had made any such arrangement as Mr. Cheshire had suggested. The blocks were voluntarily drawn by Mr. Cheshire, who said at the time that as he was about to bring out a book of his own, he should like to have the use of them, and he (Mr. Hooker) thereupon said that, doubtless, he could have them; and that was all the 'arrangement' of which he had any remembrance.

Mr. Raynor thought Mr. Abbott had offered his engraved blocks from the *Bee Journal*.

Mr. Abbott said that was true, but Mr. Cheshire had chosen to procure others.

Mr. Hooker said the sub-Committee had been limited to 5*l.* for procuring blocks for illustrations, and on reference to the accounts, it was shown that through new blocks having been cut, the sum of 8*l.* had been expended.

Mr. Abbott said that Mr. Cheshire had taken credit in the *Journal of Horticulture* for having drawn and furnished the blocks gratuitously, and thought his claim now was inconsistent, to say the least of it.

Mr. Peel said that he thought no such complication as that suggested by Mr. Cheshire could be permitted. The blocks had not been 'hawked' about, and would not be. Mr. Cowan had borrowed one, which was a reduced copy of one of his own, and Mr. Cheshire could, doubtless, obtain others if he made application as Mr. Cowan had done.

Mr. Cheshire then said that as a new edition of *Modern Bee-keeping* was about to be brought out, it would be only fair to him, as he had written the whole of the present edition, and had a right to the copyright of the same, that his claim to the authorship should be acknowledged in the future editions.

Mr. Peel disputed Mr. Cheshire's claim to the authorship of *Modern Bee-keeping*. It was the work of the Committee, and was produced as such, nearly every member, including the late Mr. Hunter, having con-

tributed to it, and there was a direct understanding that it was to be considered the work of the Committee as a body.

Mr. Cowan, Mr. Bartrum, Mr. Raynor, and Mr. Hooker, spoke decisively against Mr. Cheshire's claim, all agreeing that he had no greater share in the work than he had been duly credited with.

Mr. Cheshire considered he was badly treated by the Committee. He was about to bring out a new work, and if his claim was not allowed, he would lose the advertisement its acknowledgment would give him. He had done a very great deal for the Association, and was entitled to consideration.

Mr. Bartrum wished to know the nature of Mr. Cheshire's grievance. Every member of the Committee had done a great deal for the Association, giving service at their own cost, while he knew that Mr. Cheshire had received money consideration to a considerable extent.

Mr. Cowan said the original manuscript had been voluntarily written by Messrs. Hunter and Cheshire, that every member of the Committee had received a copy of it, and had been invited to make suggestions for its improvement, which they had done, and those suggestions had been incorporated with it. If they did not write the work they gave their brains to it, and a similar course had been pursued with regard to the second edition.

Bees and their Sense of Colour.—At the recent meeting of the British Association, at York, the President, Sir John Lubbock, delivered an address, entitled, 'Experiments on some of the lower animals with reference to their Sense of Colour.' The experiments of Sir John Lubbock had been tried chiefly with his bees. He explained that in order to test whether and how bees were affected by different colours he took slips of glass and pasted upon them pieces of coloured paper. Each glass was thus distinguished by a different colour. He arranged them in a row, and then laid upon each a second slip of glass upon which a drop of honey had been placed. He had trained a bee to come to this spot for honey. He watched the slip on which the bee alighted, and after she had sipped a little, he removed the honey and watched which honeyed slip of glass the bee would next prefer. This manœuvre was repeated until the bee had been at all the coloured glasses. Of course he noted the order of her selection. He waited till the bee went back to her nest, and then he set about altering the position of the glasses, so as to make sure that the bee was not influenced in her selection by their arrangement, and in this way he repeated his experiments one hundred times, and took care to work with different bees from more than one hive. His glasses were numbered 1 to 7, according to the order in which they were visited by each bee. Adding together 1, 2, 3, 4, 5, 6, 7, Sir John got 28 as the total record for each journey. A hundred journeys increased the total to 2800, and if the bees showed no preference each of the seven colours would have a total of 400 against it. If the bees showed a decided preference for one colour, of course it would not reach that figure, inasmuch as it would be recorded among the small numbers every time it was visited early. Judged by this standard, the bees showed themselves fondest of blue. The blue record was 275, the white 349, the yellow 405, the red 413, the green 427, the orange 440, and plain glass was 491. Testing the matter another way, Sir John took the percentage of cases in which the bees went respectively to each colour, first, second, and third. The result was that out of the hundred rounds the bees took blue as one of the first three colours visited in seventy-four cases, and as one of the last four in only twenty-six cases. On the other hand, the plain glass was selected as one of the first three to be visited in only twenty-five cases, and it was left to be one of the last four visited in seventy-five cases. Sir John concluded that the bees were affected by colour, and that their favourite colour was blue. There are comparatively few blue flowers, and these few he was inclined to think were the descendants of white and yellow ancestors.

The Abode of the Honey Ants.—Very little of the abode and still less of the habits of these very strange ants is known. To remove this reproach from entomology, the Rev. Dr. McCook started in the early part of July, 1879, for New Mexico, where these ants had been found. Stopping on his way at Manitou, Colorado, which is situated in the mouth of the Garden of the Gods, an ants' nest was discovered, the external architecture of which was new to him. An examination revealed that the objects of his search were before him. The New Mexico journey was abandoned, and a series of observations were made at Manitou, which are recorded in the proceedings of the Academy of Natural Sciences of Philadelphia for January last. These ants (*Myrmecocistus melliger*) have one of their castes with the abdomens distended to the size and shape of a small grape, which acts as a reservoir in which the sugar or honey is stored. That section of the country known as the Garden of the Gods is 6180 feet over sea level. It embraces a space of about two miles in length by one in width, the surface of which is broken into ridges, often crossing each other. These are crowned by red sandstone and conglomerate rocks, whose strange, peculiar shapes, often presenting the likenesses of various heathen deities, no doubt suggested the name given to this bit of landscape. Along the tops of these ridges, and on their eastern and south-eastern slopes, the nests of the honey ant are located, but about 90 per cent of those found were on the tops of the ridges, where there was both warmth and dryness. The exterior architecture resembles a small mound of gravel. The largest nest seen measured around the base 32 inches, and was about three and a half inches in height. The gate is a single funnel-shaped aperture in the centre of the mound. At first perpendicular, it then proceeds with a slight slope, until, becoming deflected, at a more or less abrupt angle, this arm leads into a series of galleries and rooms. While the floors and walls are made quite smooth, the roofs are left just as the earth and pebbles had been picked out of them by the workers. The galleries and rooms are in stories. The queen room was a nearly circular apartment, four inches in diameter. The honey rooms varied in size, were generally oval, and from four to five or six inches in length, while three to four in width. They had vaulted roofs, the sides from one-half to three-fourths of an inch in height, increasing to one and a half inches in the centre. Careful observations seem to prove that the honey ants are nocturnal insects, that the honey is obtained from the sugary sap of the oak galls, made by a species of Cynips, on the twigs of *Quercus undulata*. The honey has an agreeable taste, is slightly acid in summer, from a trace of formic acid, not quite neutral in cool weather. It is a nearly pure solution of fruit sugar, but showing no traces of crystallisation. The Mexicans and Indians eat this ant honey freely, and regard it as a delicacy. The Mexicans press the insects and thus extract the honey. They are also said to prepare from it an alcoholic liquor. It has been calculated that it takes 960 honey-bearers to yield one pound (troy weight) of honey.—*Times*, 20th Sept.

Melissolatry.—"We understand that Mr. Boscawen has discovered in a private collection of objects coming from Carchemish a gem representing a priest who stands upon a bee when sacrificing. The cultus of the bee amongst Semitic tribes could be deduced from the name of Debórah, "Bee." Mr. Boscawen's discovery may help the understanding of the passage in Isaiah, vii. 18," And it shall come to pass in that day, that the Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt [the Philistines worshipped the fly], and for the bee that is in the land of Assyria."—*Athenæum.*

We regret to announce the death of Signor Lucio Paglia, the celebrated Italian queen raiser, on the 15th ult.

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

HISSING FOR BEES.

I saw so much that interested me in my flying visit to your home in June, that I now write, hoping you will experiment with your bees regarding the following, and record in your *Journal* something of your experience.

In three passages of Scripture there is something about 'hissing,' which may, or may not, afford very valuable instruction to those who keep bees. Isa. v. 26: 'hiss.' Isa. vii. 18: 'The Lord shall hiss . . . for the bee.' Zech. x. 8: 'hiss.'

Hiss for the bee.—One of my commentaries says, 'The metaphor is taken from the practice of those who keep bees; who draw them together from their hives into the field, and lead them back again, by a hiss or whistle.'—Cyril in *Bishop Lowth* on Isa. v. 26. Another of my commentaries says on same passage, 'Bees were drawn out of their hives by the sound of a flute, or by hissing or whistling,' in Isa. vii. 18; or, 'Whistle to bring bees to settle.' And in Zech. x. 8: 'Keepers of bees by a whistle call them together.' Now, will you not try this hissing or whistling, whatever it be; whether you can make the bees follow you or not by it? I wonder could one coax a swarm out of its home in a hollow tree by thus making noise, for I am puzzling how to dislodge one; or out of an old chimney in a ruin, as I saw a swarm yesterday. Now, do please try to discover the secret which underlies these words of the grand old book, the Bible, and give your discovery to your readers.

Our weather here is, I fear, very unfavourable for honey gathering. So much rain that we almost fear for the corn; plenty of hay unsaved as yet. I moved (carrying on poles) one of my three hives to the heather, but I think they had only two or three fine days since I did so; and to-day a man who has six skeps refused to sell me honey (though I offered to unite his bees for him) because the weather is so unpropitious. I hope I was right in pricking out like lettuce the melilotus you so kindly gave me some seed of.—J. Digby Russell, *Parsonstown.*

[From our point of view the commentator quoted from was in error in supposing it to have been the practice to draw bees from their hives into the fields, and lead them back again, by sound of hiss or whistle. Hissing, whistling, or flute-playing, we take it were simply noises made equivalent to the tinkling, tanging, or ringing, with key and frying-pan, or by sound of bell, which are common in our own time for the (supposed) purpose of drawing together the scattered bees of a swarm on the wing. The custom continues, and was acknowledged by law in the time of Alfred the Great, when, if ringing a bell, any one following a swarm of bees had a presumptive right on another's demesne.

The expression in Zechariah, x. 18, 'I will hiss for them and gather them,' seems to confirm this view, and neither of the other passages mentioned is inconsistent with it. Isaiah, v. 26, says, 'And he will lift up an ensign to the nations from afar, and will hiss unto them from the end of the earth, and behold, they shall come with speed swiftly;' and Isaiah, vii. 19, 20, says, 'And it shall come to pass in that day that the Lord shall hiss for the fly that is in the uttermost parts of the rivers of Egypt, and for the bee that is in the land of Assyria. And they shall come, and shall rest, all of them, in the desolate valleys, and in the holes of the rocks, and upon all thorns and upon all bushes.' In the last passage quoted, hissing is evidently the signal for gathering together 'from the uttermost parts,' but not for labour, as would be understood if it were the sound by which bees could be led from their hives into the fields, as the commentator hath it. 'They shall come, and they shall rest, all of them;' and where can we find a more pleasing picture of *rest* than in a happily-clustered swarm?

We cannot imagine where any account of the asserted practice of 'drawing them from their hives into the fields,' as described, can be found. Columella describes the process used in ancient times when 'swarms' showed a disposition to 'betake themselves by flight to a more distant habitation.' He says, 'Let the youth (swarms were supposed to consist of young bees—Ed.) that are making their escape be terrified with brazen timbrels, or rattles, or with the sound of earthen vessels, or tiles, which for the most part lie everywhere,' that they might be induced to cluster. This was written nineteen hundred years ago, not from actual observation, but as a kind of summary of the writings of authors then considered ancient, and if sounds were used in their days to induce bees to leave their hives as suggested, it is highly probable that some inkling of the practice would be found there. It is, however, a most interesting subject, and we shall be very glad to record the opinion of others upon it.

Could 'hissing' be a term used to denote a *terrifying* sound? 'The anger of the Lord was kindled against his people' (see Isa. v. 25); they were like a swarm of bees about to depart for a distant habitation, and 'hissing' may in that case have a terrible significance, and they may have been only too glad to 'rest,' even in desolate valleys, and in holes in the rocks, and upon thorns, and bushes; or, in fact, to crowd together anywhere when taught to fear the judgments of the Most High.—Ed.]

BEE STINGS.

In connexion with the article on 'Bee Stings, extracted from *Nature*, in the July number of the *British Bee Journal*, may I be allowed to make a few remarks?

And, first, I would ask whether it is satisfactorily proved that the sting of the worker-bee is only used at the cost of the life of the bee in nearly every case, almost without exception?

Why do bees when fighting in defence of their stores appear to use the sting end of the body by constantly touching their adversaries therewith? Does not the sting then come into use? I think I have observed that when the fatal stroke is given, great care is used, and that efforts are made to strike the most vulnerable parts.

When two bees are in mortal combat, they may be seen twirling round like a 'catherine-wheel;' are they then only 'attacking with their jaws?' or do they make any use of their stings? Is it necessary for them to use the sting in such cases in the same way as they do with larger enemies, that is, to leave their stings in the wounds?

Some time ago I observed that at the end of a

fight one bee stung the other so effectually that it did leave its sting behind in the usual way, but this rarely takes place.

A week or two since I found a mouse hidden up in a space in a 'Combination' hive, and when I had killed it I put it on the top of the frames, and the bees seemed to sting it over the nose, lips, and ears, but left no sting behind.

How is it that a bee can mortally wound a wasp? Does not the shorter body of the bee give it the advantage, so that it can employ its sting in the most vulnerable parts of the wasp?

Do not we often get stung when the sting is not left in the wound?

This spring I opened a hive of 'hybrids,' when the cloud of flying bees struck the back of my gloveless hand, and stung it in many places, but left no sting behind.

Do not the drones feel any of the effects of the stings of the workers? or are they killed outright with the jaws only? I observe that the worker frequently curves its body as if using the sting.

I have not examined wounded bees with a glass, but hope to do so.

We should not be quick to admit imperfections in the 'wonderful works of God.'—Jno. Urell, *Gt. Maplestead, Halstead, July 15th*, 1881.

[It by no means follows that a bee using the 'sting end of its body' necessarily uses its sting. The late Major Munn devoted much time and attention to the subject of queen-slaying, and was of opinion that instead of stinging, the bees forced their poison into the spiracles of the queen, and caused her suffocation. That they do sometimes sting, and leave the sting in the body of their bee-victim, is well known, and hence the inquiry by the writer in *Nature*. We cannot answer all the questions proposed, but the general impression is that the sting is always used as a means of defence, and except when driven into soft substances is left behind, 'almost without exception,' in which case the insect dies. We have never had a bee withdraw its sting, perhaps through being thick-skinned. Drones are generally worried at the base of the wing and thrown out to die. It by no means follows because a bee curves its body, that it uses its sting—a man when about to leap clenches his hands, yet does not strike with them. We shall be glad to publish the result of the examination of slain bees under glass; we cannot think they will all be found with sting wounds, or that the evidence will be in favour of all having been stung. If stinging were the only cause of death—in a mêlée where the fight is furious, many would have no time for selecting the vulnerable points in the armour, and hundreds of bees would be found united sting and wound; but after a bee-fight how few cases of the kind really are found. When two distinct races, say blacks and Ligurians fight, the killed are nearly all of one race, favouring the idea that amongst bees the sting is not (apart from the jaws) the only means of offence and defence. The 'galled jade' may wince at the last sentence in our esteemed correspondent's letter, 'our withers are unwrung.' We cannot possibly admit imperfection where we sincerely believe imperfection to be impossible, and we pity the presumption and folly of those who dare to call in question the wisdom of the All-Wise. The bee is a thicket in the forest of wonders in which we live, and not until we have attained a higher condition shall we be able to see and understand its intricacies. In the meantime, their pursuit affords the highest mental pleasure, and each point gained reveals new beauties that beacon and bring us nearer to their Omniscient Author. Ed.]

PATTERNS FOR COTTAGERS.

Some of my cottage neighbours, who have kept bees for years in skeps have seen my box-hives (two of your Cottagers, one of your Standard, and six of my own rough manufacture), and, astonished at results, are wishing to commence. I think it might prove a help if I distributed some of your 'Leaflets;' but, as we are very ignorant here, I should like samples (some of the poor fellows can hardly read). One I induced to cut a hole in his straw skep at top, as soon as the bees 'hung out,' and put a box (large fig-box) on top, with rags round edge to fill up crevices, the honey so obtained has started him making a rough wooden hive. My own hives have been made from Colman's starch-boxes, which are very nearly the same dimensions as your 'Cottager,' with dead-air space of 1 inch at sides, a $\frac{3}{8}$ soap-box, wood at ends, the length and breadth are the same as your Cottager; and the material comes to—Box 3*d.*, soap-box 2*d.*, nails say 1*d.*, 1-lb. tin of paint 6*d.*, and zinc-excluder 1*s.*, brings up a total of 2*s.* The bottom board braced (front brace projects to form alighting-board), and then wrenched off gives floor. I have had some splendid honey out of common fig-boxes, which fill rapidly, probably owing to shallowness. Our cottagers look at 8*s.* for a hive, cheap though it is. Shall I be dealing fairly if I show them how to make as above, and lend patterns of your wide-ended frames? The making would keep a few at home and out of the 'public.' Is it a fault to have the hive as shallow as mine are, $8\frac{1}{4}$ inside measurement?—One who wishes to Help, *Pagham, Chichester.*

[Any one has full liberty and license to make and sell any and every article generally used in bee-keeping in England. As regards our own inventions or adaptations, seeing we have given working details of everything to enable bee-keepers to make their own, if they are able to do so, it was scarcely necessary to make the application. The depth of hive, $8\frac{1}{4}$, is within half an inch of the Woodbury, and the only objection we should offer lies in that very fact; it seems (nay, is) such a pity to make hives whose frames are nearly, but not quite, interchangeable with a common standard.—Ed.]

A PLEA FOR COTTAGERS.

Having watched with interest the persistency with which numbers of your correspondents recommend to cottagers the advisability of keeping their bees in moveable bar-frame hives, I have herewith taken upon myself to reply to the said correspondents on behalf of the cottagers. Perhaps those writing have not troubled to put themselves into a position to inquire or find out the means placed at the disposal of our 'rural cottager' (for of such I conjecture they mean when quoting the word cottager). I myself have frequently recommended the same method of bee-keeping, pointing out the advantages it has over the old system, but have been met invariably with the question, How much does a frame-hive cost? To which I have replied, from 5*s.* upward. Imagine the surprise of the poor cottager (who earns from 9*s.* to 16*s.* per week, and has a family to support) at the absurdity of recom-

mending him to purchase such an expensive article, when he can purchase five skeps for the money! Can we wonder at the reluctance of the cottager in taking up the bar-frame system? Again, supposing a cottager (I mean a cottager or labouring man of Worcestershire or Herefordshire) takes the bar-frames into consideration, how is he to find out how to manage them, when it is diametrically opposite to anything he has seen or heard of? Any suggestion from yourself or your numerous correspondents will greatly oblige.—J. J. A., *Market Square, Bromyard, Sept. 19th*, 1881.

[Cottagers without means, and in districts so benighted that there are no sources of instruction, are in poor plight indeed, and may well be excused if they are slow to improve. But is the case generally as our correspondent puts it? Would it not be wiser to invite the 'cottager' to a better understanding of bee-management in skeps, that he may obtain the means of further improvement, rather than to teach him that frame-hives and improved culture are out of his reach? Besides, it is now so easy for a cottager or other person to make hives, that no one with average brains need be long without one or more, if he has the desire for them. If a cottager wants a rabbit hutch he finds means to obtain it, and with a bee-hive the same result would be achieved. Who is to create the desire for improvement is the chief question, and we should say certainly not those who pretend that it is beyond one's ability.—Ed.]

BEE LORE AT TUNBRIDGE WELLS.

I am now getting some bees together again. This ought to be a glorious country for them, with cultivated land, including fields of clover and orchards on one side, and miles of heather on the other. I stocked your hive with a heavy lot of bees on Monday, the 12th inst., and they have nearly built out five sheets of foundation and begun two others, with lots of syrup and pollen stored. I drove some more condemned bees on Saturday last, much to the astonishment of the owners. An old lady came just after I had taken them from a doubled straw skep, and she expended a good stock of pity both on me and the bees. She had been a bee-keeper for years and years, she had tried all kinds of hives, she had stupified the bees and tried to feed them into a stock after taking the honey. 'But bless you, the old way was the best and the kindest. They always died, poor things! and how could they live? You could give them the sugar stuff, but you couldn't give them bee-bread to make the combs to put it in.' I could not convince her that they made combs from syrup. 'Well, sir,' she said, 'you are trying to be kind, but they must die; they won't stop in a hive that hasn't been "dressed." Now, I daresay you know a lot about bees, but we must all live and learn, so I will tell you how to make the bees stop in a hive. Rub it all over with some bits of old comb, and then—now don't think it nasty, these little hands that have made lots of puddings and tarts do it over and over again every June—then get a bit of pig's dung, about half as big as your thumb, and stick it just in the middle of the crown of the hive—inside mind, and, sure enough, a swarm will never leave it.' 'Now, do you really think,' said I, 'that that helps to keep the bees?' 'Think it, I know it, sir! I used to be superstitious (*sic*), but I did not think myself too old to learn when I was told that. I lost some lots of bees before, but never a lot put in with the pig dung.' I tried a little reasoning with the old lady, but without instilling a doubt in her mind as to the effect of her odorous hive-dressing, so I drove off. I don't know whether the old folks about you practise this operation; perhaps you may like to try the effect yourself, and tell us the result in the *Journal* next year.—P. H. Phillips, *Crowborough, Tunbridge Wells, Sept. 19th*, 1881.

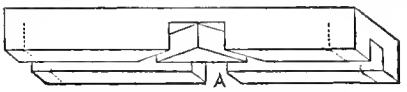
BEE LORE.—HONEY FLAVOURING IN HERTFORDSHIRE.

I may mention that the poor people in this neighbourhood very rarely 'take up their bees' until 'after harvest' for the following reason, 'that the bees gather honey all the summer, but only add the *flavouring* just at last, just about harvest time.' One old man who has kept bees all his life has told me that 'honey is not worth eating till the flavouring is put in it.' Make what use of this you like, but it may not be a new idea to you. I have not heard this argument anywhere but in this county.—Herts.

PREVENTING WINTER DRAUGHTS.

Now that winter is again approaching, I give a sketch of the apparatus I am now adjusting to the entrances of my hives, to prevent the cold winds blowing in. It is surprising what a draught a slight wind will cause, through even a small entrance, and I have many times wished that I could devise some means whereby the difficulty might be overcome, and at the same time allow the bees a free passage.

The sketch shows the under side of the said apparatus, which is made by cutting a half-inch groove in a piece of deal one inch square (or more), of the desired length; the entrance passages being half-inch square, and cut through as shown in the illustration, A being the front, or outside entrance, when in position. The wind driving in at A passes



Draught preventer—inverted.

along the tube, or groove, and out at either end, the shape and position of the inner entrances preventing it from passing into the hive. A saw-cut should be made, and a piece of wire gauze inserted therein, at about half-an-inch from each end of the tube, so that the bees may not pass in or out at the extremities. The draught preventer answers best when it can be used between an outer case, and a hive standing inside, but it will be found a valuable addition to hives of any shape. It will help to check robbing, and in winter the sun's rays cannot shine directly into the hive to entice the bees out, as it often happens on the snow-covered ground.

The half-inch groove and passages are sufficient for medium and small colonies during winter months, but, of course, for very strong stocks the bee-keeper will regulate the size accordingly.

I have no doubt that a medium colony, sheltered from draught, without chaff-packing, would winter better than one stronger, with packing, if the latter had only the ordinary direct entrance, other conditions being equal.—(ANONYMOUS.—ED.)

ENCOURAGING EXPERIENCES.

Four years ago I commenced this interesting and instructive study with one swarm in a skep hive. The second year my stock increased by a swarm and cast to three hives, from which, owing to the cold and wet season, I did not, at its close, extract more than three pounds of honey, considering it essential to leave the bees a sufficient quantity to feed upon during the coming winter, which, I have since learned, was mistaken economy, as they exist and thrive as healthily upon sugar-syrup at a decidedly minimum cost, and in this way allow the honey to be closely extracted without loss or detriment to the bees.

The third year my stock was increased to seven hives, all of which I had transferred into frame hives, but from all of them, in consequence of the spring and summer having been so disadvantageously cold and backward, I had but the moderate yield of twenty pounds of honey. Nothing daunted, however, I fed and protected them through the severities of last winter, during which I did not lose one stock, and this summer have been amply rewarded, fortune having favoured us with an early spring and warm summer, consequently productive of abundant resources for the gathering and storing of honey. And I have the gratification of informing you that my yield has amounted to over 226 lbs. of honey; that I now consider myself no longer an amateur, having been appealed to by numerous inquirers in and beyond my immediate neighbourhood for information as to the successful system I have adopted, which I have taken advantage of by in every possible way, doing my utmost to popularise apiculture as not only an interesting, instructive, and profitable, but a humane study.

In several instances this summer I have 'driven' bees on the approved system as advocated in the *Journal* belonging to those of my neighbours who did not themselves understand the operation, and who, rather than have their bees destroyed, have offered them to me for my experience and trouble in rendering such assistance; and in two or three cases I have put two lots together in one hive, giving them two bars of comb out of old hives with the rest of artificial comb-foundation, and in all of these hives the bees are working well. I am, in all, possessed of an apiary of thirteen hives, five of them being 32 ins. by 14½ ins. inside. In conclusion, allow me to thank you, Mr. Editor, for the prompt and patient attention you have always shown to any request I have made, or question asked.—SUSAN THEOBALD, *Tower House, Leicester.*

WHICH IS THE BEST HIVE?

Although my name has not appeared on your list, I have taken the *Journal* over two years. I have Vols. VII. and VIII., and four numbers of Vol. IX. I fear I am asking too much, but would you kindly give me a little advice upon one subject? I am a working man, and a young bee-keeper. I started with the straw skep and brimstone pit; next trying Pettigrew's large hives and driving; then Stewartons; and now Messrs. Abbott's frame-hives. Still I am not quite satisfied.

Before finally arranging my apiary there are two things to be decided, viz., Which is the best hive and frame for practical use? The size of frame most suitable for our district is the Woodbury Standard, which, I believe, will come into general use; and the longitudinal principle also. But whether they shall be double-walled hives, and broad-shouldered, open-ended frames, or a hive like the one shown on p. 8, No. 97, *British Bee Journal*, with wide-ended close-fitting frames, I cannot make up my mind for want of more information. What I want to know is this:—

1. In the improved Giotto hive, what is to prevent the bees escaping from under the frames into the case, and remaining there to build comb perhaps?

2. Will not the lengthened top bars in a wide hive make it difficult to insert sections or cushions between the frames and hive side?

3. Is the dummy board fitted close to the hive-sides, or only the width of the frames (perhaps I should have said length of frames)? If the latter, what holds it in position?

4. I like the principle of the improved Giotto hive, but there appear to me to be some difficulties in the way of working it that with my present knowledge I cannot see my way to overcome.

I feel that I am not justified in asking so many questions on my own behalf, but if you should think them worthy of a paragraph in the *Journal*, there may be others like myself to whom the information may be of some value. If not, perhaps you may kindly give me a few hints at some future time when you have leisure, for which I beg to hand you a stamped envelope, &c. I may add that I am using some of your frames of both the kinds in question, but find that they do not work together.—WILLM. BOTFIELD, *Culmington, Bromfield, Salop, Aug. 25th.*

[1. In the hive we illustrated, and have in use, there is nothing to prevent the bees getting under the frame-ends, and between them and the outer hive walls. Practically, the frames themselves touching each other and the front of the box or case form a hive of themselves which, by the moveable dividing-board or dummy, can be shut off or enlarged to any reasonable extent. This nest of frames hangs suspended in a box, and for convenience of packing for winter, or applying sections in summer, we have left two inches of space along both sides of the said nest, and thus far have every reason to be satisfied that it is in no way detrimental. Any one objecting to the spaces can do without them; they are not essential, but they are convenient; they give ample room in lifting the frames out and replacing them; they enable one to turn up the quilt (which covers the spaces) and look for signs of overcrowding; and they secure

immunity from sun heat in summer, and good packing space in winter. It is only reasonable to suppose that if bees are stinted of space within the frames, they will get outside of them, as they will out of any other receptacle that is too small for them; but during all the time our hive has been in use there has not been an attempt to take possession of the spaces in question.

2. The lengthened top bars need not be in the way in a hive, long enough from front to rear. There is, however, no reason whatever for putting sections in the side spaces, and, as we have before said, the spaces themselves may be done away with, or reduced to half an inch or less, as in Hale's (Horncastle) Giotto hives.

3. The dummy-board, as we have it in use, fits the hive sides loosely, but it need not be wider than the frames are. It is kept in position by a strut against the back of the hive, which, when pressed down, jambs the frames close, and makes them practically solid, thus actually preventing the need for propolis, which, as a matter of fact, is very little used.

4. We are always glad to give information if we are able to do so, particularly through the *Journal*, where it will be read by many. We believe the principle of our Giotto to be a good one, and some day the public will see the advantage of it, not the least of which consists in the facility with which a nest of the frames can be put into any box that will hold them without regard to shape, make, or finish, and it was with a view to exhibiting that facility that we made the top bar so long. With a set of those frames, in pieces, any hedge-carpenter, or amateur, can make his bee-nest of any width or depth he may desire, regard being had to the length of the parts. He can nail the frame-ends on any parts of the top bars to suit boxes of any width, and he can shorten the ends to suit shallow boxes, or he can have them made of extra length for tall boxes, and thus hives can be obtained for a mere song.—Ed.]

SWALLOWS AND BEES.

I do not know if an incident of the kind mentioned below has ever come under your notice, viz., if swallows kill bees. If they do, they must be dangerous enemies. The other day, I saw a swallow fly up to another which was sitting on a telegraph wire, and put something into its mouth and then go away. The other almost immediately dropped what it had received. Noticing that it looked large I went and examined it, and found it to be a full-sized drone.—W. B. L., *Quorn*.

[We have once or twice heard complaints of swallows as bee enemies, but hope the evidence against them had no better ground than their having caught the drones to feed their young with. There are several birds that will capture drones, and they run some risk while about it, but only the 'tom-tit' (to our knowledge) will take worker bees. Big, fat drones are welcome food for young birds, and doubtless the old ones think they were sent for the purpose. While drones abounded our hives were besieged by common sparrows; they would pounce upon the drones and capture them most dextrously, but not a worker-bee would they touch, as far as we could see; and from the fact that now the drones have departed the hives are unvisited by birds, there are good grounds for supposing that drones only were the object of their search.—Ed.]

UNITING BEES.—FIGHTING.

Ten days ago I drummed a very large swarm of black bees out of a straw skep, for a neighbour, to save the bees from destruction, and put them into a hive filled with foundation, confining them to six frames, and feeding liberally and constantly with syrup. In six days they had filled out all the six frames, and mostly filled them with food all sealed. My neighbour now asked me if I wanted more bees, if so to drum another large swarm of his. I did so, and went about the work as follows: The weather being cold and dull, I turned up the skep and poured a quantity of syrup, strongly scented with essence of peppermint, among the bees between the combs to give them a feed and make them lively, and let them rest for twenty minutes. During this time I opened the bar-frame, removed the dummy, and inserted the remaining four bars of foundation and sprinkled the bees on the other frames with peppermint-scented syrup, also putting some in the feeder above the frames. I now drove the bees out of the skep and poured them on the flight-board of the hive, opened the door wide, and in a few minutes all were inside, and I thought the job done all in order. The next morning, however, I found the entrance choked with dead bees, and on removing the bottom board I found, as I estimate, from a third to a half of the bees I added the night previous dead. On looking inside I found the foundation in two of the new bars twisted and bent out of shape, a thing which never happened with me before, and the fighting still going on, but only to a small extent. Can you suggest any reason for the fighting, the twisted foundation, and the dead bees? I have united my own bees twice this year in exactly the same way, and no fighting ensued.—"Dix" Leslie.

[If the new combs of brood and honey had been removed prior to the bees being united, there would have been no fighting, since there would have been nothing to fight for or defend, and the bees could have been so mingled that they would scarcely have known 't'other from which.' In our leaflet on 'Uniting,' we have advised that bees to be joined should be 'reduced to a common state of poverty;' and though we admit that occasionally some of our directions may be harmlessly ignored, we are careful to recommend that they be strictly adhered to. It is not our province to advise experiment, but to give the result of experience and show a safe way of procedure. Many are prone to 'catch the nearest way,' as Lady Macbeth so tersely puts it, but they too often reap 'the illness' that attends it, to make it a safe or even warrantable proceeding.—Ed.]

ABBOTT'S NEW GLOVES.

I write in the first flush of a brilliant success with your new gloves received by post this morning. I tried them in examining three hives during a half-hour of sunshine. Some bees were very irritable. I just soaked the outer pair in a solution of washing soda. The success was brilliant.—John Marten, *Ensinge, Sept. 3rd*, 1881.

P.S.—You can use this as you like. To show there is facility of manipulation with the gloves, I afterwards caught a queen by her wings and caged her.—J. M.

NOVEL USE FOR BEES.

I send you the last new use of a bee, or, perhaps, you might say, a very early one, as the writer is supposed to have lived at the end of the eleventh

century, Dandi by name, who wrote the poem 'Dosa-Kumara-Charita' in Sanscrit, though the story itself may have been much earlier, but only then turned into poetry.—Apaharavarma, son of the king of Mithila, goes on his travels, and, amongst other things, becomes a robber or burglar, only, as in the scriptural style, he is a breaker through, not as with us a breaker in; he says: 'One very dark night, I set out determined on robbery, and equipped with a dark dress, a short sword, a spade, a crow-bar, a pair of pincers, a wooden man's head (to be pushed in through any opening in a wall so as to receive any blow which might be given), a magic candle, a rope and grappling iron, a box with a bee in it (to be let loose that it might put out the lights), and other implements.' So even such an innocent animal as a bee is capable of being put to a very bad use by human ingenuity. (*Early Ideas*, by an Arian, p. 82.)—J. R. Haig, *Union Club, Trafalgar Square, Sept.* 13.

FINDING WASPS' NESTS.

The way I have found wasps' nests is to stand a distance from the hives and observe the line of flight the wasps take, watch and follow those that fly low and steady, they being loaded. In this way I have traced them over the Rectory lawn garden and by the side of a plantation into a field on my glebe farm, a quarter of a mile distant.—Robert Thorpe.

AFRICAN BEES.

In reading a book written for boys, by the Rev. H. C. Adams, Vicar of Old Shoreham, some years ago, and finding that he makes mention of a breed of bees in Africa which appear to build large houses of earth and have no stings; I wrote to ask for his authorities. He replies that they were perfectly trustworthy, but he cannot be certain now (so many years since he wrote his book) what they were. I wonder if any of your readers know anything of them, or have friends out there who could tell us anything of them. This apparent industry and freedom from powers of offence would make them very valuable. Indeed, they would become so popular as to promise to pay the expenses of their transportation.—C. Feilding, *Sept.* 22.

THE RED CLOVER IN NEW ZEALAND.

It has always been supposed that the red clover in New Zealand would not seed. A friend of mine, however, whom I met last year, informed me that his red clover, in the N. Island, fructified. So they must have some insect besides the humble bee who is capable of fertilising the blossom.—C. Feilding.

BE READY.

I venture to suggest to all bee-keepers that they read well Abbott Brothers' remarks in their advertisement in *B. B. Journal* for August (outside page), and follow their advice. The importance of *not* being ready has been fully verified in Lincolnshire this season.—R. R. Godfrey, *Grantham.*

HOW QUEENS ARE LOST.

The paragraph in your editorial notes in *Journal* for July, 'How queens are lost,' came home to me with some pith, as I had just lost two Ligurian queens under similar circumstances, which, with your permission, I will relate, as I am sure it will interest your readers.

First of all, I drove a hive from a straw skep, with a young unmated queen, and put them into a frame-hive. For eight or ten days I watched to see if the queen was laying, but there was no laying all this time, so I came to the conclusion, that, as the young queen had not been mated before leaving the straw skep, there was no brood in it from which to make another queen. I was right, and returned the queen to the straw skep, and gave my new bar-frame hive a Ligurian that I had breeding in another bar-frame, allowing them to make one for themselves, which they have,—a nice one, too. Well, I introduced my queen in the usual way—caged her for two days. I liberated her without any apparent hostilities being manifested towards her. But on looking for her two hours afterwards, I found her 'balled,' and she dead in the bottom of the hive.

At once I procured another, and gave her to the same hive, with two days' caging. She was well received. All day I watched her every half-hour. She was all the time doing well, with a loyal-looking colony; but alas! she lay dead on the cold ground in the morning. I was still bent on having a pure Ligurian queen about our apiary, so I procured still another. But I made up my mind not to give her to murderers again, so I made a hive for her with five bars, containing grubs and young bees. I shook no bees off the bars as I lifted them, but allowed all to remain, concluding, as I was putting all on a new stand, the old bees would return to their respective hives, and leave nothing but brood and young bees. This all proved correct, as for days there was no traffic out or in the hive; nor was there any till the bees became old enough to go forth. It is now a prosperous and contented colony, with a beautiful Ligurian queen at their head.

But to return to the queen-killing hive. I gave them a comb with a queen-cell on it, but they tore it out. I then gave them some Ligurian eggs, but they did not make queens from any of them. I still kept looking out for queen-cells being formed, but none. One day my eyes became unusually large to see lots of eggs about. So I would find the layer, and did. A nice black queen was there in all her glory, and no doubt had been there all the time, and had ordered the slaughter of my other queens. She had left the straw that she was returned to in a courting expedition, and entered the frame-hive; that no doubt she had entered during the eight or ten days she was in it, returning from similar excursions, I am now satisfied. After finding out the cause of all my disappointment and expense, I hope that my sad experience will be a caution to others.—J. Kennedy, *Comber, Co. Down.*

P.S. As a confirmation of the above stronger than mere conjecture, I have this week (August

10th) driven the said straw skep, and found only about one hundred bees in it, with all honey and no brood, and for a month past they have been quite idle. Still it is wonderful that they dwindled away to such an extent in such a short time. But there has been no breeding since about 1st June.—J. K.

WINTER QUILTING.

May I ask you to give your advice on the subject of winter quilting? Although most unwilling to question the opinion of those versed in apiculture, I cannot help thinking that the materials commonly used for the first layer, viz., tick or calico, are far from the most suitable. Any such close fabric is, when the least damp, most impervious, and, if so, to be avoided when free evaporation is an essential. I quite believe that the only perfect arrangement is horse-hair cloth covered with a chaff cushion, but this is unfortunately expensive, and what is wanted for general use must be cheap. I have made, for experiment, a mat by binding straw into rolls with twine and then sewing them tightly together, the result being similar in substance to the straw skep. I shall now squeeze it into a wooden frame, the size of the hive top, to make the edges square and neat, and fasten in with fine wire,—do you think this is likely to answer, or would it be propolised to any serious extent? I thought of keeping it from touching the bars by leaving the frame a little beyond it, and the frame could be made snug by tacking a strip of list round it. Any suggestion from you on the subject will be most valuable.—J. H. V., *Manea, Aug.* 15.

[There is no objection to straw pads or straw in frames as top-covering for frames, but it ought to lie close upon them to prevent loss of heat by circulation of air above the brood-nest. The reason we recommend a layer of light material next the frames is that it may be laid directly upon them without danger of crushing the bees should any be up there. When laid on, it can be gently smoothed down, and the bees cautioned to 'stand from under,' which they will quickly do, and then a straw pad or chaff cushion can be safely laid on. Straw crown-covers in wood frames, are an old institution that fell into abeyance when the quilt was introduced, but now, in the form of chaff cushions, the principle is being revived. Chaff cushions are formed by nailing four pieces of thin board together as a frame of the size of the hive, from two to three inches deep; canvas is nailed on both sides, with chaff or similar material between, and when put upon the first layer of quilting they are excellent for the purpose intended. Straw cushions of the same make suggested by our correspondent, laid on to the frames with neither calico, hair-cloth, nor canvas intervening, would be crowded with propolis, every irregularity being filled and sealed up.—Ed.]

HOLY-LAND BEES, &c.

I have waited for you to first give your experience with these bees. In some particulars it corresponds with mine, but I think I can say a little more about the hybrids, and but little respecting the pure race, as I have been so unfortunate as to lose the queen I had from you. On receiving her in June of last year, I introduced her to a medium-sized cast, and had her laying a few hours after abstracting the black queen.

Within two or three days I took out a frame of eggs and gave it to a queenless colony, and soon had a lot of fine queens. These were all over three weeks before they laid an egg, and I began to think they would be drone-breeders, but at last they went to work, although all proved to be hybrids. The loss of the imported queen I attribute to having her wings cut, as probably in my absence the bees swarmed and the queen was lost. Her bees were all beautifully marked, and appeared so until late in the autumn, when I packed them for winter; but as they were such dreadful spitfires I did not look further than to see that they possessed plenty of brood and honey, although had I looked farther I should probably have discovered what I did this spring—that the queen presiding had whole wings. I found at my first examination this year that the hive contained hybrids, and so of course knew what to expect. The bees of the imported queen were very yellow, but they were crosser than any Ligurian hybrids I ever had to deal with, and took no notice whatever of smoke, while the hybrids are perhaps more easily handled than Ligurians, showing a striking contrast to the Ligurian hybrids, most of which I find are of a cross nature.

I did not notice if the pure race were given to robbing, but the hybrids are first and foremost at every opportunity. They have also a peculiar way of their own in robbing without fighting. Where heavily laden bees of other hives drop on the ground under the entrance, there are these waiting for, and coolly persuading them to give up their load, just as we have seen bees cross tongues at the entrance with those of their own hive. Not once, in such cases, did I see the robbers at the flight-hole; they seemed to know it would not be safe there. It appears strange that a bee would so easily give up its load, especially as sometimes three or four would rush towards one at the same time, and almost push it over in their hurry to be first.

I do not think either the pure or hybrids will produce more honey than Ligurians, while their comb-honey is of a very dark and damp-looking appearance, as the honey is close to the caps, and in this state it is not so saleable.

You say your hybrids are all very well marked; mine are tolerably so, but far from being so well banded as Ligurians. I think it quite possible that the latter may have come from a cross between the Palestine bees and the blacks at some distant time, especially as the hybrids partake of the gentleness of the Italians. They are, as you say, very prolific; but I have Ligurian hybrids ahead of them in that respect, besides storing more honey.

My bees were left to themselves from the beginning of October till the end of March, when I went up to Crawley and packed them for their journey to this place. I had them down in vans by road, arriving here March 31st, a distance of about twenty-eight miles. In some places loose flints lay on the hard road, having only recently been put on, but on arrival I was pleased to find that not a single comb had broken, although I use no bottom rails to my frames.

There was a keen east wind blowing at the time, which continued for some days after they reached here. It was nearly a week before I could release them, when I began to feed for the first time. It was fortunate, considering the weather, that they had not been stimulated earlier, or I should, I am afraid, have had a quantity of chilled brood. As it was, but few of them had commenced brood-rearing, and there was, of course, little open honey in the cells.

Although I had them in such a favourable condition for removal, I was, of necessity, greatly behind in the matter of brood-rearing; and it took some time before the bees showed any perceptible increase. Some, however, were ready to swarm by the beginning of June, and altogether they have done remarkably well.—S. SIMMINS, *Rottingdean, August* 18, 1881.

THE BRITISH BEE-FARMER'S HIVE.

Will you kindly favour me with your opinion of my best course of conduct with my hive? It is a small frame-hive in which I hived a swarm May 26th; I fed them, and they made their eight combs in the fortnight. In about another six weeks I extracted about 4 or 5 lbs. of honey, but desisted from taking more, as I thought the bees objected to the brood that had been a little shaken out of the comb, as I found a good many thrown out the next morning. I thought, perhaps, when the one lot was hatched out the queen might perhaps leave the end bars for storing; but she didn't. I fancy if I had supered it, I should have had a good deal of honey; but acting on a certain gentleman's principle I left it as it was—and I reckon lost all the honey; the bees were laying about a little, but not in great numbers.

I had all the bars out this morning, one end bar is clear of brood, nearly full of honey, but only a little sealed. The other end bar, the inside has about a third sealed comb with a little brood, the outside perfectly clear, I imagine ready for storing; the other six frames have more or less sealed honey at top, and brood scattered all about middle bars rather thickly. They are bringing out and killing a few drones this morning; not many drones in the hive. I dropped a few ounces of barley sugar in the feeder these last few wet days; but they left it altogether this fine morning.

I am rather doubtful if they can get much honey about here, though they get big loads of pollen of all colours, and they are very liberal with propolis. I am surrounded with trees and greenery, but not many flowers. All that I can see to do is to leave them alone, and let them do as they like till the time comes for weighing and feeding up for the winter, and being satisfied with my honey harvest of 5 lbs.

Which lot of bees is it that comes out about one o'clock of a fine day, about two or three hundred fly about the front, all going in again about half past two; are they the indoor workers out for a constitutional?—G. J. BRYANT, 115 *Pentonville Road, N., Aug.* 22.

[Our querist is evidently reaping fruit from the Robinsonian seed scattered broadcast from Frodsham last spring, and which we did our best to prevent the growth of at the earliest opportunity, foreseeing that it would be our lot to remedy as far as possible the mischief the principles thence inculcated would be certain to bring about. The hive described we recognise as the so-called British Bee Farmer's hive, twelve inches square, holding eight frames, about ten and a half inches square inside; and from this absurdly small bee nest, which has not more than half the capacity the breeding power of a good queen demands, the 'Bee-farmer' is led to expect any number of swarms, and to be able to extract twelve pounds of pure limpid honey per week, and 'the system if followed *honestly*' (it is said), 'should bring an annual income of ten pounds per hive.' (Vide *British Bee Farming*, by James F. Robinson.] Supering is eschewed by the precious system (?) inculcated and nothing in the way of obtaining comb honey tolerated; but twice a-week the two outside combs are to be put through the extractor, and three pounds of honey taken from each. In such a miserably small bee domicile the results promised are simply impossible, and the experience of our correspondent is what might reasonably have been expected.

We cannot help our correspondent at this late date, the honey harvest being over, except by recommending him to provide boxes of at least thirty inches in length with a moveable dummy or divider, and with entrances at the end, and to transfer the contents of the present boxes to them giving additional frames of comb foundation in the spring, if the bees survive, to enable them to increase their brood nest and attain strength. He may then gradually fill the hives with frames, and should the season be favourable he may reasonably expect a larger honey yield either in the form of extracted or comb honey.

The bees that disport themselves about the hive entrance as stated are doubtless the young bees, taking their airing flight, and marking the hive's locality and bearings.—ED.]

BEES DESERTING THEIR QUEEN.

A few days ago I had a strong after-swarm from a straw skep, which I hived in the usual way, and at once placed on its permanent stand. All seemed well, but on going to feed them in the evening I noticed an unusual commotion. I thought nothing of it at the time; but next morning found the bustle had given way to stillness. On turning up the skep I found it occupied by about fifty bees on one side, and the queen alone on the other; I tried to catch the queen, but she took wing, and after flying round several times finally settled on my coat. I then caught her, and put her in a box with a glass lid with a score of her subjects, and watched the result. The bees at once attacked her with great fury, and but for my intervention would soon have killed her. They certainly were most disloyal. Now what was the cause of all this? was the queen barren and had the bees found out her condition, as seems probable from the fact that they had not commenced comb-building, no doubt correctly thinking it was useless to prepare cradles where no babies were expected? Bees are doing exceedingly well this season.—ARTHUR R. WHITE, *Charlton House, Bellingham, Northumberland.*

[The solution of this problem is by no means difficult. The after-swarm, as is commonly the case, had several queens with it, and the commotion noticed was the result of their quarrelling. One of the queens had evidently then departed with the majority of the bees, one was still attended by a small retinue of about fifty, and a third was 'out in the cold' wandering in the hive unattended. Having selected their own, they repudiated the abandoned

queen, and would have killed her had they not been prevented. Bee-keepers too often ignore the polyarchic nature of after-swarms, apparently from a fixed faith in the generally correct principle that only one queen is allowed to exist in a hive.

An after-swarm may contain a dozen young queens all anxious, able, and willing to reign; but nature says two perfect females shall not live together in a hive, so they fight or run, as the case may be, until only one remains with a cluster.—Ed.]

ERRATIC QUEENS.

The queen I wrote to you about some time ago is doing very well; but as she filled nearly the whole of the brood-nest with drone eggs in the first case, there were not many worker-bees hatched out. More than half of the bees in the hive at one time were drones, but they are disappearing fast. After the first hatching of sealed brood, the breeding stopped for more than a week for want of pollen, and now breeding is going on very slowly, there being about a dozen larvæ feeding at the same time. They are all now worker-bees, and from the same cells that previously contained drones. The queen lays plenty of eggs, but they do not hatch, except a few about the centre of brood-nest, owing to the scarcity of bees. As each egg fails, she lays another, so that many cells contain two, and a few three, eggs, one in each cell being fresh and the others dried up. I am quite satisfied with the queen, the misfortune was in her being overcharged with eggs on introduction, and this would not have mattered much but for the hive having been queenless about five weeks previously.—Henry Stott, 188 *West View, Tong Moor, Bolton, Aug. 16th*, 1881.

VINEGAR FOR STINGS (?)

I think it may be useful to your readers to know that vinegar, so highly recommended by your correspondent, 'J. R. J.,' as a cure for bee-stings, is not successful in all cases. I was stung on the face yesterday while taking some honey, and having extracted the sting, at once applied a little sweet oil, and then some ordinary brown table vinegar. I repeated the application of vinegar two or three times, and thought no more about it at the time, as bees'-stings usually affect me but little. Gradually, however, the whole side of my face, and especially my eye, swelled up very considerably, in fact, this sting has caused me more discomfort than I have ever experienced before.—M. W.

PLANTAIN LEAF versus AMMONIA.

Having read in the columns of your valuable paper, that plantain leaves, when applied to bee-stings, were a sure cure. I accordingly resolved to test them as follows:—I was stung, firstly, on the inside of calf of leg, and immediately applied the leaf, after well bruising it, from which I found immediate relief from pain, it not swelling in the least. I was next stung on the back of neck, the sting being in fully three minutes. Being so thoroughly confident in the efficacy of the leaf, I did not apply my usual remedy, viz., ammonia, but served it the same as already mentioned above, which relieved the pain, but did not wholly stay the swelling at the time (this was done about 5 p.m.), but was far superior to ammonia, for by next morning there was not the least sign of my being stung. I can therefore safely recommend the plantain leaf as being the cheapest, and an effectual remedy for bee-stings.—J. J. A., *Market Square, Bromyard, July 23rd.*

EGG-STEALING BY BEES.

The following, which I think is a clear case of egg-stealing, may interest your readers. On 14th July, a hive cast. I did not intend it to cast; I had heard the queen piping the evening before, but just as I was going the next morning to cut the queen-cells out, the cast came off. I put them into a hive with three or four empty combs and fed them, as I intended to take the queen when fertilised and give her to a stock that had an old queen. On 2nd August I looked into the hive and found they had made queen-cells in which there were grubs, and there was no other brood in the hive except one or two drone-grubs near the queen-cells; on 5th August, found both queen-cells and drone-cells sealed; on 16th August, found queen-cells open and saw queen. I suppose they lost their queen in the first instance, when she went out for her marriage tour; but how and where did they get eggs to make a new queen unless they stole or borrowed them from another hive? Another case came under my observation. I had a stock with an old queen that I determined to kill and give them a young queen. I examined it one day and found it had not a trace of either brood, eggs, or queen, but one sealed queen-cell, that I opened and found a full-grown grub in it. Now, where did they get the egg to make that queen, as they must have been without a queen for some time, as there was no brood in the hive of any kind except the sealed queen-cell? Have you ever known bees steal eggs to make a queen? We have had the most wretchedly wet summer I ever remember,—bees could do nothing. I am glad to hear that you have had such a good season.—W. Conway Preston.

[We have never heard of an authenticated case of egg-stealing by bees, though sometimes instances have occurred that have led to the conclusion that such stealing had taken place. Is it not probable that the eggs that produced the queen-cell (?), and the drone-grubs were laid by the young queen of the cast prior to her making her wedding tour? We have had many such experiences; and is it not possible that with eggs in the hive and an unfertile queen present, the bees may have raised a queen-cell on a drone larva? Its proximity to drone-brood favours this view, and such mistakes are often made by bees. The probability is that the queen was present in the hive during the whole time but had hidden herself as young queens frequently do, sometimes, as we have found, by creeping headlong into a cell. In the second case, the probability is that the full-grown grub in the queen-cell found in the hive was from an egg laid by the old queen previous to her abdication. It is known that bees depose their old queens before they become drone-breeders exclusively; however, it is reasonable to suppose in this case, that the queen was capable of laying, and even though the egg was an unfertile one, the bees would still build a queen-cell upon

it, futile though its effect would be. Singular things are constantly occurring with bees that puzzle and perplex observers, but when they can be accounted for on any reasonable assumption we are chary of admitting them as new features. If bees stole eggs on such occasions, they would, we think, do it sufficiently often to satisfy minute observers of the fact, and fewer stocks would die out through queenlessness.—Ed.]

BEE-QUIETING, BEE-GLOVES, BORAGE, AND IRISH HONEY.

I have found a way of clearing the bees from the bar-frames, when I can take what honey I like and transfer them if I like; but we do not smoke them, as we find it best not to do so. I wish your correspondent was present covered with honey instead of a veil; I would engage he would be half killed in ten minutes. I find india-rubber gloves valueless, the bees sting through them fearfully. People should be careful what they write. Do you or any of your readers believe the tales of honey collected in the neighbourhood of Waterford? If you do, I think you will believe anything. I am very fond of my bees, and am now managing them all (forty hives) myself, and selling a great lot of honey. When I had a 'bee-master,' I sold little honey and lost 100*l.* a-year with my bees. There is no better country in the world than this for bees; we have food from the end of February till the autumn. I should like all your readers to see the borage. I have mislaid the gentleman's letter who wants enough for an acre; will he write again? I shall not have enough for that, but he shall have all I can spare; the bees are mad after it. Wishing you great prosperity.—T. Beale Browne, *Sulperton Park, Cheltenham.*

[From what we saw of the bee-flora around Waterford and heard of the fame of Messrs. White & Sons, the honey merchants of that place, who gave us the information on which our calculation in the July *Journal* was based, we place the greatest reliance on the statement they were kind enough to forward to us. It was not sent for publication; but being of interest, we took the liberty of 'echoing' the statement which our correspondent is disposed to disbelieve. Messrs. White and Sons have a high reputation around Waterford, and we regret that we had not the opportunity of making their personal acquaintance during our tour in Ireland. We quite agree with our esteemed correspondent that people should be careful what they write, but when authenticated by name and address, their statements are held to be worthy of respectful consideration.

Echoes from the Hives.

Cheshire.—Bee-keeping.—'Thanks for your skilful guidance I get more expert in manipulations with my bees. I have now resolved to do away with skeps; next summer I shall transfer the remainder into wide close fitting frames. I find the Ligurians in this locality do not come out so soon in a morning, or work so late at night, as black bees, and they are more easily affected by the cold. In the honey season, however, they appear to be marvellous workers. This has been my best year; but never can expect to realise near one fifth so much as I read about in your *Journal*. I took the first prize here at the Over Flower Show, and the weight of honey taken from it, section-supers as well as box super, weighed but about 16 lbs. At the show named I and our friend Mr. Saxton, of Nantwich, drove a hive of bees surrounded by some two to three hundred people. After which we transferred them into a frame-hive, and returned the surplus honey, and bees to the owner. Thus we are endeavouring to enlighten people in our own simple way. We have two good bar-framists here beside myself.'—Parent Stock.

Baldock.—Comb-foundation.—'Never used foundation before, but every one ought to do so. You do not say sufficient in its praise. It is built up at once. I put driven bees, to save them from sulphur-pit, into two hives, and gave them three frames each, and two days after could hardly believe what I saw.'—G. M. S.

Bees at Tisbury.—'Talking of Norway you may be interested to hear that I saw the king's apiary at Christiania. Bee-keeping, however, in Norway appears at a very low ebb. I was allowed to open the hives, and so on as much as I liked; but there was nothing very new. The most interesting thing was that in all the bar-frame hives the frames ran, as in your Combination hive, across the entrance. The season here has been on the whole capital for bees,—40 to 50 lbs. of comb-super honey per hive. (I should have had 10 to 15 lbs. a hive more if I had been in England.) And this without any lime harvest at all—we had curiously enough no lime blossoms this year.'—Ashton G. Radcliffe.

Midhurst.—'I am happy to say I have used sixty sheets of your flat bottom foundation, and have not had a mishap. I never saw a bar-frame or a bit of foundation till this year.'—J. Jarvis.

Worcestershire.—Thin hives again.—'This has been the best season I have known for honey-gathering in this part of the country. One of your 3*s.* 6*d.* Woodburys has given me 130 lbs. of the very best honey, and a large swarm, and probably the bees have 10 lbs. remaining in the hive.'—Chas. Lyne.

Cairnie.—'I have splendid honey results this year, I have learned the art of supering and preventing bees from swarming; as soon as I find time I will give you a full account. What about your plaster casts? do you sell them, and what is the price?'—A. Cockburn.

[Yes; 10*s.* per pair.—Ed.]

Hill Cottage, Edfield, Gloucestershire, Aug. 10th, 1881.—*Speciality Feeder.*—'Having given your speciality bee-feeders a good trial this season, I should like to tell you that they have done good service, but seem to want slight alteration. I found that heat or damp caused the wooden stands to curl up, and hold the tin rim of the bottle so tight that considerable force was needed to remove it; also, that under similar circumstances the perforated zinc being passed together horizontally, twisted about, some being drawn ¼ inch away from the holes in the cover of the bottle. Either the warping of the wood should be prevented, which might perhaps be done by nailing the two pieces together with the grain of one piece crossing that of the other, or the hole in the wooden stand should be made larger, and the zinc arranged so as to be free, and so not affected by contraction of the wood. Even as it is, it is the best feeder I have tried, and a little alteration would, I think, make it perfect. We have had a good season here for those whose bees were brought forward early, but the supplies in this neighbourhood, which is almost entirely in pasture, generally cease when hay is cut.'—H. Jenner Fust, Jun.

Whissonsett, Norfolk, Aug. 23.—The Harvest.—'What a truly glorious honey harvest we have had this year in this part of England, it has been everything that one could have desired. I have taken fully 300 lbs. from ten stocks, I cannot give you the exact weight as I gave so much away during the early part of the summer, though I certainly have not over-stated it. My heaviest and best hive was a Stewarton, and the first year of my having tried them too. (I think, Mr. Editor, I shall try them again.) So I hear we are to have another try at getting up an association for Norfolk, I heartily say, "May it prosper!" What is the matter with the Norfolk

men that they have not come forward before? Are they themselves afraid of the horrid east wind, or are they waiting for some one to invent a warm padded top coat, with which to clothe every bee during working hours in the months of April and May? I like Norfolk, though a stranger, but not these winds; and I am sure, could they speak, my little favourites would say the same.'—ALFRED E. BOOKER-HILL.

Bee-keeping at Salisbury, Aug. 27.—'Proper bee-keeping, even with skeps, has been entirely unknown in my parish and neighbourhood until I tried to show the way to better things. My man-servant is a decent carpenter, and has the free use of my tools, and I am attempting to get some cheap Cottage hives made by him to serve as a bait to our neighbours. He has adopted bar-frames for himself, and had fair success this season.' —H. G. W. A.

Benmore, Sept. 5th.—'Hives of the Griffin class are an absurdity as regards price. Forty of such hives would buy a small cottage, and where on earth are they going to store such a mass of extras? Surely that cannot be the way to popularise bee-keeping. It may be very well for scientific purposes, possibly, but for the purpose of making bee-keeping profitable, to my mind, it is simply ridiculous.'—D. WOOD.

Huntly, Sept. 6.—Bees in Aberdeenshire.—'In Aberdeenshire I may tell you that I commenced the season with five frame-hives and two straw, and have now seven frame and three straw hives, and the total amount of honey I have taken is 12 lbs. of extracted honey and eight 1-lb. sections. Is not this miserable? but I see by the *Journal* that you have done well in England. Wishing you the success you deserve.'—GEO. M'INTYRE.

Holehouse Farm, near Milton, Sep. 8.—'Very much pleased with the comb foundation and your excluder you sent to me. I took a Makeshift hive (your Standard pattern) to the show at Kidsgrove, and one bar from a standard hive with comb, bees, and queen in an observatory hive, which was the greatest feature there. I took the first order for a Combination hive of your pattern; so you see that your ideas are making steady progress in North Staffordshire. I have now four converts to the bar-frame hives (the Standard), and gained you a subscriber to the *B. B. J.*'—G. CLOWES.

Queries and Replies.

QUERY No. 422.—*Earwigs in Hives.*—I have lately observed several of my hives, both frame Woodbury and common hives, infested with an insect, one of which I enclose, and which I have been informed is a species of earwig. I have killed numbers late in the evening mostly coming out of the hives. I was recommended to use camphor, but it had no effect. Kindly tell me how to destroy them. All the hives, with one exception, are perfectly new, and the bees active and healthy. My bees have been a great success this season, and seem to have been so in the few places they are kept about here. Your *British Bee Journal* is of great help to me, and the Limnanthes Douglasii you sent in the spring was especially favoured by them. I have a splendid lot of young plants for next year from the seed of the old ones. —H. O. LANGLEY, *Thurles, co. Tipperary, Ireland.*

REPLY TO QUERY No. 422.—Earwigs, or more properly earwings, for they have beautifully delicate wings of the shape of the human ear, having the power of flight, cannot be kept from hives by ordinary appliances effective with creeping things. Their chief object is warmth, and the remedy against them is to prevent their gaining access by keeping the entrance narrow, that the bees may be able to guard it, and by using hives that will not permit access to the quilts, or other covering, for it is in the warm spaces about the hive in which they most love to congregate. In large hives with spare combs they will make their abode in the spare cells if they can pass the sentinels, but with tight hives, narrow doorways, and moderately strong stocks, this is almost impossible. We are glad you have found 'Limnanthes' a useful bee-plant.—ED.

QUERY No. 423.—*Wasps' Nests.*—Will you supplement your instructions on the destruction of wasps' nests by a few more details? If the 'guards' at the mouth of the nest be on the alert how do you insert your squirt without first dealing with them? and if you attack the nest in the daytime, you not only fail to destroy all the wasps that are foraging abroad, but will be attacked by them on their return home.—K. C. J.

REPLY TO QUERY No. 423.—The turpentine should be squirted or poured into the hole leading to the nest—the guards die instantly from the effects of the fumes. With all due respect, we beg to say again that the wasps returning from foraging will *not* attack. We very much prefer daylight for this kind of business. Any one with nerves should wear a veil; but after having seen the effect of the turpentine, and the easy way in which the returning foragers turn over and die as they alight in the entrance will soon feel disposed to be rid of the obstruction to his view. With such easy means of destroying wasps, at hand, no one has occasion to suffer from their depredations for any length of time.—ED.

QUERY No. 424.—*What is a Complete Hive?*—Having had an argument yesterday with a gentleman as to whether a moveable comb-hive under any circumstances can be complete without a moveable roof in addition, I shall feel greatly obliged if you can give your opinion in next *Journal*.—A. ADAMS, *Mellsham, Sep. 22, 1881.*

REPLY TO QUERY No. 424.—Our decided opinion is that a hive of any kind to be 'complete' should have a rain-proof roof. It is no argument against this proposition that bee-boxes, and skeps put into bee-houses, are called 'hives,' and sold as 'hives,' the latter often being minus floor-board, as well as roof: facts often forgotten in the comparison of the respective cost of the various kinds offered for sale.—ED.

QUERY No. 425.—*Preventing Syrup Crystallising.*—Will the editor kindly say how crystallising may be prevented in the syrups given to the bees? I have found syrup crystallising in spite of vinegar and boiling. A correspondent some time ago mentioned glucose as a preventive, but he did not state the quantity needed. Is glucose likely to be injurious to the bees?—D., *Boulogne.*

REPLY TO QUERY No. 425.—We are experimenting with American glucose with a view to ascertaining its suitability for bee food, and as an agent in preventing re-crystallisation of syrup, but have not yet been able to determine the smallest quantity that can be used for the purpose. Alone it is a flavourless sweet, and has been both commended and condemned in America as bee food —one party claiming it to be the bee's natural food, another condemning it as the cause of bee losses in winter, and a third utterly condemning its introduction to bee uses because it is in America so freely used in the adulteration of honey. During summer, with honey about, the bees would not touch it, and some (leakage from our puncheon) was washed away; but now, bees and wasps haunt the shed in which it is kept, and the leakage is not lost. In the proportion of a quart of glucose to three of syrup, making a gallon of bee food, it has answered admirably, there being no sign of crystallisation, and the bees take it freely. It is sold in original puncheons of about six hundredweight, but we shall be willing to send anyone a few one or two pound jars of it at 6*d.* per lb. for use or experiment. Mr. Cheshire claims that it is true bee food, and seeing that it enters so largely (under the name of grape sugar) into the natural composition of honey, we cannot see any danger in its use as such.—ED.

QUERY No. 426. *Earwigs.*—Are earwigs injurious to bees? or are they only about the hives for snug quarters? If they do injury, how can they be destroyed? [See Reply to Query No. 422.—ED.]

Excluder to prevent Swarms.—Have you, or any of your readers, tried the excluding zinc with the Combination hive last season to prevent swarming? and if so, with what result? and how many frames were left between it and the entrance? Please ask your readers to give their experience on the matter.—F. JELLICO, *Blackrock, Sep.* 21.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. F.—*Ligurian Queens.* The pipe-cover cage is a useful institution when queens are to be united to old queenless bees, but is not necessary in hives where there is hatching brood. It is not usual for the whole of the abdomen to be yellow, they vary greatly; the colour of the queen is no criterion of the colour her progeny will be. If queens arrive in unkind weather, they will keep for some days or weeks in a warm, dark cupboard; no time can, however, be guaranteed, as so much depends on the number and condition of the bees that accompany them. As a rule the queen will live longer than they, not being liable to dysentery through over-gorging, while every bee will be ready to yield the last drop from its honey sac to preserve her life, though it die immediately of starvation.

CARPET STRIPS TO DUMMIES.—These are formed by doubling strips of carpet and nailing them between two thin boards, so that the double or loop edges project and fit the hive. For a Woodbury, the two boards should be about 13¾ inches long, and the carpet should project about half an inch each way, that when squeezed in the whole (as a dummy) may fit tightly.

CONSUMPTION OF SUGAR.—A lady bee-keeper complains that "no one seems to know how much syrup, that is, how many pounds of sugar, bees ought to consume in a year," and we are sorry to say that unless the particular circumstances under which the bees are supposed to exist be "given," we cannot be very helpful. Naturally, they would require none, their honey would be sufficient for them; but if, in autumn, they are robbed of their store, they should be recouped sufficient to enable them to live through the winter. A strong stock newly robbed in September would require, say, 12 to 15 lbs. of sugar to render it safe till May. It might not consume one fourth of that quantity, but one can never tell what kind of weather may occur, nor how much brood will be raised. In a good hive, bees need very little food for their own purposes, but if breeding be largely induced the consumption will be enormous.

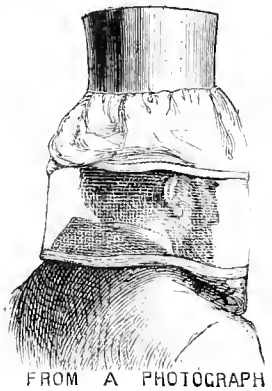
J. P.—*Keeping Mice out of Hives.* Having the hives in a house, and no means of preventing the mice running over them, it is obvious that they must be protected by wirework, perforated zinc, or wooden covers, that the vermin cannot get through. A zinc-excluding adapter on the top of the quilt would be of great service, and, being a useful article in other respects, would be the best for the purpose. The entrance to the hive should be of a size to allow only two bees to pass. A bag of chaff or a folded sack laid on the adapter would give all the additional winter protection necessary.

WINTERING.—*Fleece Wool, as Packing.* Fleece wool, cleansed as suggested, would make excellent non-conductive packing for hives, but we fear is too valuable for such use.

TURNING HIVES ROUND.—It would be very injudicious to turn hives round to prevent the sun shining into the entrances. A very short experiment would show the difficulty the bees would find in being compelled to enter at the back instead of the front of their hives.

DR. PINE'S WOVEN WIRE VEILS

CANNOT TOUCH THE FACE OR EARS.



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Price 2*s.* 9*d.* post free. Strips of Wire Cloth, for makin them, 1*s.* 8*d.* each, post free. Letters to Editor. fo. 15

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BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

Price 1s. 6d. per bottle, or Post-free for 1s. 8d.

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MR. C. N. ABBOTT, Editor of *B. B. Journal*,
Fairlawn, Southall. fo. 15

BEST BAR-FRAME HIVES, 1 inch wood, 8*s.* each. BAR-FRAME HIVES, ⅞ inch wood, unplaned, 5*s.* each. Instructions for Management, illustrated, 3*d.*

Orders for 32*s.* and upwards Carriage paid. HIVES sent on approval if requested.

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GLASS HONEY JARS.—Abbott Brothers take orders for these for forwardment from Birmingham. Price, 1 lb., 15*s.* per gross; 2 lb., 18*s.* per gross. Packing 2*s.* and 2*s.* 6*d.* respectively. Those who wish for these must order early, as no stock is kept. There are no agents and no depôts. ABBOTT BROS., Southall, Middlesex.

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NEAT little Bone (Ox-ivory) Affairs, for Spraying Combs and Bees, or for Diffusing Deodorisers or Disinfectants in Sick-rooms. Price 1*s.* 6*d.*, post-free.

ABBOTT BROS., SOUTHALL.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 103. Vol. IX.] NOVEMBER, 1881. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

The general work of the apiary being over, and the bees quiet and comfortable in winter-quarters, there now only remains to clear up and pack away any impedimenta that may have accumulated, ere closing the account for the season, and totalling the various gains and losses. English bee-keepers, as a rule, have great cause for rejoicing, but in Scotland and Ireland the results have not been cheering, though here and there some good takes have been recorded; notably, one in Ireland, of 180 lbs., from a single stock, and a query will, doubtless, be freely echoed, if one, why not many? And although we are not able to say what other stocks in the same apiary have done—though we shall probably have a report—we would remind our readers that there is generally a best stock in every apiary, and in a large apiary the best is usually 'a wonder.' We have had such an experience with our own bees this year, and if every stock had served us similarly, we should declare bee-keeping to be, not one of, but, the most profitable business extant. Towards the end of April, a stock of half Syrians was so strong that a second hive of combs was put under it, and this was rapidly filled, and the population so immense, that on May 14 it was divided into three, foundation being given to the swarm, and thus, there were, in a fortnight, three splendid stocks, A, B, C. From A we took, during June, two full swarms, and, during July, extracted 27 lbs. of honey; that stock is now strong and well found for winter. From B, the swarm, we have also had two swarms (one a cast, which we have kept, and which is also safe for winter), 6 lbs. super, and 21 lbs. of extracted honey; and B is now in good winter order. From C we had one swarm, and 38 lbs. of super honey; twelve 2-lb. sections, for which we were awarded a prize at South Kensington, but the stock which is very strong in bees needed 10 lbs. of syrup to fit it for wintering; it is choke full of bees, and has a large quantity of brood, and, all being well, will be fit for repeating the career of its present stock in the spring. Here, then, has one stock multiplied into eight, and those we have retained have yielded 14 lbs. of comb honey, in sections, and 46 lbs. extracted. What the four swarms that were sold have done we cannot report, but as they all went out early they must have done well. The profit on that one stock has been simply enormous—say it was worth three guineas in April, there are now four stocks of equal value; four swarms have been sold for 6*l.*, and the honey for 5*l.* 6*s.*, making a nice little sum altogether; and we have four stocks left. Many other stocks did exceedingly well, but this, the only lot we worked for comb honey, made us wish there had not been such a demand for swarms, as evidently, this year, honey-getting would have been the more profitable game. *Apropos* to this, we may mention that a noted bee-keeper and caterer, formerly of Crawley, in Sussex, has discontinued hive-making for sale, and has gone in for honey only, at Rottingdean, in the same county, whence he has kindly forwarded a description of his draught-preventer, mentioned on another page. We owe an apology for wandering into our own apiary, and penitently return to 'our muttons,' to advise that now bees are quiet, everything possible should be done to prevent future disagreeables. Hive-roofs should be thoroughly investigated and made rain-proof, and vermin carefully exterminated (it is astonishing how many thousands of insects may be prevented by destroying their nests now), a routing out of crevices with a small bunch of birch-broom will be of great service. Old combs should be boiled up (or melted down) to prevent harbour for wax-moth, and the possible spread of disease; old skeps should be burned for the same reason; old frame-hives that are too good to burn should be thoroughly cleansed: old ideas should

be sifted, and old debts paid, particularly those outstanding for the *Bee Journal*; and then to a goodly number we can say there will be something off your minds as well as off ours.

Cottage Bee-keeping.—We dare say there are many who, having read the account of our wonderful stock of bees, will wish that every cottager in the kingdom had success equally good all round, and we heartily wish so, too; but wishing is of little use without one puts one's shoulder to the wheel, and tries to bring about what is desired. A great many have tried to convince the cottager that the improved method of bee-culture is the better, have shown him hives and supers, and have manipulated in his presence, and shows and the Bee Tent have carried its practice and results to his very door; but in a general way the efforts to convert him to the new system have had but one result. He is astonished at the wonderful things set before him, but does not believe them to be possible in his own case. He is frightened at the apparent costliness of the hives and appliances, shrugs his shoulders, and declaring 'such things are not for the likes o' me,' reverts to the skep, and is little the better for what has been put before him, and in time begins to doubt the evidences of his senses as to the genuineness of the efforts made in his behalf. By reference to a letter from the Rev. and Hon. H. Bligh in another page of this *Journal*, it will be seen that a still further effort is to be made to bring 'cottage bee-keeping' home to the mind and understanding of the people, and valuable inducements are offered to those who shall best exemplify the most economic method of conducting it to a satisfactorily profitable result.

Bee-keeping experts are invited to establish a 'Poor Man's' corner in their apiary, and to conduct the work of it in every respect on the lines which a poor cottager can pursue, accurate accounts being kept, to be open at all times, and a balance-sheet produced, which, and the reports of the visitors, will form the grounds on which awards will be made of the ten pounds in prizes which have been so handsomely offered by the generous originator of the idea. Here is a field in which the various schools of bee-keepers can and must compete. There is no loophole of escape. They all profess that bee-keeping is one of the best means of enabling a cottager to increase his income, and that *their* hive, or *their* method, is the best. Now for it, who will back out? or be conspicuous by his absence? There have been challenges, and acceptances, hopes that trials would be arranged, snivellings and drivellings because there have not, and sinister imputations levelled at those who were willing to try conclusions; but never before has challenge in the friendly guise of competition been more honestly thrown down or backed by such evidences of desire to see it carried out for the common public good. The idea is noble and unique, and we have little doubt but that the British Bee-keepers' Association, to whose hand it is offered, will gladly take it up, and carefully carry it through; though to get all possible good out of it, and to prevent as far as possible suspicion of unfair treatment, we would suggest that the 'Poor Man's' departments should be located in the gardens of cottagers, that they may see for themselves how everything is done, and get practical lessons of the most valuable kind under the various systems that may be thus brought home to them.

HOW TO MAKE A FIRST-CLASS HIVE.

Now that the winter is drawing upon us, and there will be little to be done with bees, there will be opportunity for those who can use saw and hammer to amuse themselves economically in the manufacture of hives for use next season. The hive we are about to describe we have elected to call the 'Copyable Hive,' because almost everybody will be able to make it, and that, too, out of almost any kind of boards that are available. Foreign egg-boxes are a favourite resource of rabbit-hutch makers, and out of an egg-box, by attention to our directions, as good a hive may be made as ever bees delighted to dwell in. It is unnecessary to enlarge upon the advantages of frame-hives, as they are now generally admitted; and as we are not animated by any new theory, but have simply a desire to enable people to make their own hives, and prevent the outcry against improved bee-culture on account of the cost of the implements required in its practice, we proceed at once with our task, simply premising that the original hive was exhibited at the late Dairy Show at the Agricultural Hall, but was unnoticed by the judges.

To begin then. The tools that will be required are a hammer, a saw, a pencil, a rule, and a square, and a plane if special neatness is desired; and the materials, some boards and some nails; and if very common boards be used, a yard of canvas, a few tacks, and a little paint or pitch—not a very formidable array, nor very difficult to compass.

First cut four pieces of wood about 16 inches long, an inch thick, and say three inches wide, and out of the upper end cut pieces two inches wide, and as low down as will leave the broad part, *a* (fig. 1), eight inches high—not a very difficult job; but it will be all the better done if the lines for the saw cuts be correctly marked by rule, pencil, and square. Now cut two boards

each $8\frac{3}{4}$ inches wide, from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch thick, and of the length the hive is to be inside—say 24 to 30 inches, and nail these boards (*b*) fairly and squarely on the fronts of *a* (fig. 1), allowing them to project at bottom

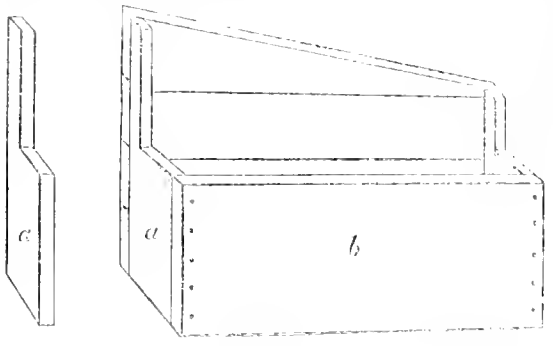
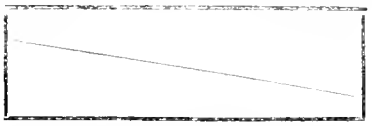


Fig. 1. Fig. 2.

$\frac{1}{4}$ of an inch,* and at top $\frac{1}{8}$ inch. The two faces, *b*, should now be laid together, and the projecting horns above *a* cut to the height the hive is to be inside when finished. The front horns may be left as they are, but the back ones should be shortened, as, on the right of fig. 2, to give slope to the roof, which will be accomplished by cutting three or four inches off the top of each. It will now be understood that the two faces, *b*, are to be the inner side-walls of the hive, and if those faces be now laid upon the table, and the then upper long sides or backs of *a* be boarded over,† the two hive sides will be completed, and they will each be double-walled with space between of the width of the piece *a*.

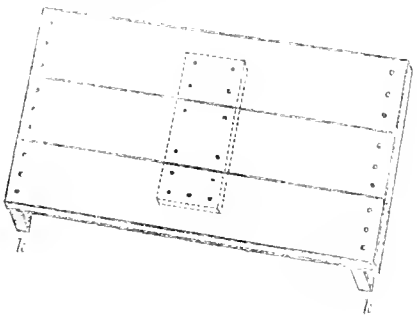
In putting on the top sloping-pieces to form the hive sides, one board may be made to form both by careful lining out and sawing, and as



the spaces in the hive-walls are to be filled with packing, it will not matter if their outer skins are in narrow widths, except for appearance sake, which we are not taking into account. The sides of the hive being formed, the front and back next claim attention, and these simply require to be nailed on. Remembering that the thickness of the inner and outer skins of the hive sides are uncertain (because we do not know what thicknesses may be used), we cannot say exactly what lengths the boards to form the front and back must be; but if boards of sufficient length be taken, they may be arranged, nailed on, and the ends afterwards cut off with ease and certainty. Supposing a board to be about 24 inches long, two lines, *c c*, should be marked with square and pencil, exactly $14\frac{1}{2}$ inches apart, that being

the inside width of a Woodbury hive. Then if it be nailed to the hive sides so that the parts *d* cover the faces *a*, and the lines *c* are even with the faces *b*, the lower part of the hive front will (when the entrance is cut) be correctly formed. The back will require to be similarly treated, and then the upper parts of front and back can be easily boarded up; and should the boards be too long, the ends can be cut off after they have been nailed on.*

The sides, and front, and back, having been put together, the floor-board and roof have to be made, and these being nearly alike, and in the character of simple flat doors, need give little trouble. They may both be made alike so far as the wood-work is concerned, of a size that will cover the sloping top, the two end ledges, *k k*, overhanging. The joints should be made as close as possible; and for the roof,



unless they be covered with strips of wood closely nailed down, the whole should be covered with canvas and painted.

To complete the hive, and render it tenable, it is now only necessary to provide frames, a divider, and a quilt; but the directions for these must be deferred to another chapter.

* The object is to give opportunity of shrinkage which is almost sure to happen, when, if the boards at first were even, the lower part of *a* would be left projecting, which would spoil the hive. The overhang above *a* will be the runner for the frame-ends to rest on, and the shoulder of *a* must be well out of the way.

† In covering the backs of *a* with boards to form the outside skin of hive, it will not matter about the joints being a trifle apart, so that a bee cannot get through, ventilation above the brood-chamber being desirable; but should there be any difference in the thickness of the boards, the thinner should be nailed on at the lower part of the hive side, that the thicker boards may overhang them, and prevent the formation of lodgments for rain or snow.

* Recruits at carpentering will often find it economical to nail on their stuff before cutting it to specified lengths, as much splitting (in nailing) will be prevented.

BRIGHTON HEALTH CONGRESS.—HONEY AS FOOD AND MEDICINE.

It will interest those who are interested in the promotion of the consumption and sale of honey to learn that a Domestic and Scientific Exhibition, extending over ten days, will be opened at the Royal Pavilion, Brighton, on the 12th proximo, when an opportunity will be afforded, by the earnest aid of F. V. Hadlow, Esq., of 8 Prince Albert Street, Brighton, of obtaining for honey a place amongst food products or preparations. Mr. Hadlow, as a bee-keeper, and one of the executive committee of the show, is anxious that there should be a large exhibit of honey, and we have advised him of our opinion that secretaries of Bee Associations who have at heart the development of the honey trade should take the matter in hand, and, in furtherance of that view, we give all the publicity in our power to the undertaking.

Mr. Wm. Hamilton, of Ship Street, Brighton, is the Hon. Sec., and will forward all particulars and forms of entry, and there is little doubt but that Mr. Hadlow, as a bee-keeper, will take care that any exhibit of honey sent shall be carefully staged. Articles for exhibition are to be at the Pavilion, Brighton, between the 5th and 8th December; but as there is every probability that all space will be taken early in November, immediate application should be made by those who wish to obtain it.

A BEE-KEEPERS' ASSOCIATION FOR CORNWALL.

We are pleased to notice that a movement is on foot for the establishment of a Bee-keepers' Association for Cornwall. A meeting to discuss the matter was held at the Town Hall, Truro, on Tuesday, October 11th, at which there were present: the Hon. and Rev. J. T. Boscawen in the chair, the Revs. W. Rogers (Mawnan), C. R. Sowell (St. Gorrans), A. H. Malan (Perranarworthal), Mrs. Hockin (Flushing), and Messrs. G. Dixon, Truro, and C. Kent, *Royal Cornwall Gazette*, Truro. It was unanimously resolved that an Association should be formed, to be affiliated with the British Bee-keepers' Association. Mr. Kent was appointed hon. sec. *pro tem.*, and empowered to draw up a circular to forward to all the clergy, magistrates, &c., in the county, convening a meeting to be held at the Town Hall, Truro, on Tuesday, November 22nd, for the purpose of adopting rules, electing officers, and the transaction of other business incident to the formation of the Association. We sincerely hope the effort will be crowned with the success its spirited promotion well-nigh ensures for it.

AN ASSOCIATION FOR NORFOLK AND NORWICH.

We are exceedingly glad to be able to report that at length an Association for Norfolk and Norwich has been started under most favourable circumstances, and with every prospect of success. In the *Journal* for January last a County Association for Norfolk was proposed by the Rev. A. E. Booker-Hill, of Whissonsett, and although seconded by Mr. G. Ringer, of Diss, it fell to the ground, apparently through lack of support; but since the Yarmouth show, so ably promoted by Mr. Samuel Barge of that place, a most lively interest has been manifested; and now that the standard has been raised by the Rev. John Blake Humfrey, of Great Dunham Rectory, Swaffham, quite an array of bee-keepers and patrons of the charming pursuit the Association is intended to encourage has rallied round it. The reverend standard-bearer enrolled thirty knights and nobles prior to the 11th October. Mr. Samuel Barge had a contingent of over twenty; and the Rev. J. Lawson-Sisson, of Edingthorpe, North Walsham, whose name is a tower of strength to the Association, has quite a battalion of his own, 'and the cry is still they come.' Lord Leicester, the lord lieutenant of the county, heads the list of those willing to be helpful, closely followed by Lord Walsingham, two ladies of title, two baronets, four members of Parliament, five clergymen, and a large number of gentlemen well known as bee-keepers, and influential for good to the cause. Such a beginning is, in itself, augury of immense success for the Association, and no words from us are needed to commend it.

CYPRIAN BEES.

The experiences and opinions in America regarding the merits of those bees are anything but reassuring.

Mr. A. F. Moon, in the *American Bee Journal*, writes dead against them.

Mr. A. T. Williams, who bred largely from imported Cyprians, says: 'They are much crosser than the hybrids, and are not superior in any particular.'

Mr. Dadant, after much experience as a dealer and breeder of them, says: 'I am not enamoured with the Cyprians—their temper is unamiable. I had the pleasure of seeing a Cyprian colony make Mr. Jones (of Canada) beat a hasty retreat. It was a pleasure, because he ridicules my veil.'

The Editor of the *American Bee Journal* says: 'Regarding the Cyprians (from which much was expected), we have some very damaging reports. They are said to be very fierce in disposition, restless on the combs, easily aroused, and display no superiority to the Italians as honey-gatherers.'

Mr. C. Dadant says of Cyprians: 'We want to get rid of them as fast as possible. It is impossible to control them. When their anger is aroused you cannot get them

quiet. My son opened a Cyprian colony at one of our apiaries, they stung every animal around the apiary, ducks, chickens, &c. They went inside the house to sting the good woman who was quietly sitting in her chair. You cannot look in front of a Cyprian colony without being assailed. You cannot move a block at the entrance without five or ten bees darting to your face like sparks from fireworks. While extracting my son received hundreds of stings from them. We do not want any more such bees even if they were better than Italian bees—and this is not proven to be the case. My grandchild was assailed by these furies while standing in front of one of the hives. I hastened to bring him into the house, and was of course followed by a cloud of angry bees; after fifteen minutes or more, while still bathing his head, we were again assailed by these bees, who were angry at not finding their way through the window. They do not know how to gorge themselves with honey when you smoke them, they shake their wings and fly to sting. They act exactly as the Egyptian bees do, and are no doubt of the same family.'

The last extract coincides exactly with our experience, and we can go even further. On several occasions bees that have crept between the folds of our clothing (which they are very prone to do), have, when liberated at night, attacked us by gas-light, when other bees would have been only too glad to escape if it were possible to do so.—Ed. *B. B. J.*

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Meeting of the Committee, held at 446 Strand, on Wednesday, Oct. 12, 1881, present,—T. W. Cowan (in the chair), Rev. E. Bartrum, D. Stewart, J. M. Hooker, H. Jonas, and the Honorary Secretary. The following country representatives were also present, Mr. Jesse Garratt and Mr. Allen, West Kent; Mr. F. H. Lemare, Surrey; Rev. J. Blake Humfrey, Norfolk.

The minutes of the last meeting were read and confirmed; the balance-sheet for the month ending Sept. 30th was also read, showing a balance in hand of 9*l.* 18*s.* 1*d.* —The Chairman reported that Mr. Henderson had expressed his willingness to undertake the duties of librarian. Resolved that Mr. Henderson's offer be accepted, and that he be empowered to carry out the resolutions passed at former Committee meetings in respect to the library.—The Secretary presented to the meeting the several copies of *Modern Bee-keeping* received from members of the Committee with suggestions for the improvement of the third edition. Moved by the Rev. E. Bartrum, and seconded by W. Jonas, 'That the several copies be sent to the Rev. G. Raynor, and that he be requested to revise the work in accordance with the suggestions made by the several members of the Committee, and to forward the same to the Chairman to be further revised by him, and afterwards to be submitted to the Committee for their approval at a future meeting.' (Carried unanimously.) It was also resolved that the charge for advertisements should be the same as in the previous edition.—Resolved that arrangements be made for the completion of the collection of hives, &c. at the South Kensington Museum as early as possible. Mr. Jonas kindly undertook the office of attending to this collection.—The Assistant Secretary was instructed to obtain estimates for the reprinting of the Quarterly Papers. —The Chairman submitted a draft schedule of prizes suitable for competition at the Royal Agricultural Show to be held at Reading 1882. Resolved, 'That the same be submitted to the Council of the Royal Agricultural Society, and offered for general competition on the understanding that a grant of 30*l.* is made by the Royal Agricultural Society to the British Bee-keepers' Association.' It was resolved 'That the Chairman and the Honorary Secretary should have an interview with Mr. Dick, the Secretary of the Royal Horticultural Society, at South Kensington, and make the necessary arrangement for holding the annual show next year.'

The Secretary called the attention of the Committee to the fact that the present certificates of the County Association were not suitable for presentation to the County Associations. Mr. Hooker suggested that special certificates should be prepared to accompany the awards of medals, or other prizes. It was resolved, 'That each member of the committee should endeavour to obtain copies of certificates which might be suitable for the purpose.' Proposed by Mr. Stewart and seconded by the Rev. E. Bartrum, 'That Honorary Secretaries of County affiliated Associations being entitled to exhibit at the Association's annual show at the same rate of entry fees as paid by members, and otherwise to be entitled to the same privileges as members, with the exception of the right of voting at any meeting.' (Carried.)

Moved by the Honorary Secretary and seconded by the Rev. E. Bartrum, 'That in all future schedules exhibitors should be requested to send their honey to the annual shows in crates similar to those illustrated in *Modern Bee-keeping*, and that a rule be inserted requiring sections of honey to be glazed, or exhibited in crates protected by glass at the sides.' It was also resolved, that special labels should be provided by the Committee for attaching to crates of honey sent by rail or carrier, the Secretary to forward such labels to the exhibitors with the request that they be attached to their several exhibits.

Since the date of the above meeting arrangements have been made for the Association's Annual Show for 1882, at the Royal Horticultural Gardens at South Kensington on Thursday, Friday, Saturday, Monday and Tuesday, August 3, 4, 5, 7, and 8.

Members of the Association are requested to observe that all communications respecting the Library should in future be addressed to Mr. G. Henderson, Clarendon House, Ealing, W.

The Librarian desires to acknowledge with thanks the receipt of the following additions to the Library:—

From T. W. Cowan, Esq.:—

British Bee-keeper's Guide-book to the Management of Bees in Moveable Comb Hives. By T. W. Cowan, F.G.S., F.R.M.S. 1881.

From Alfred Neighbour, Esq.:—

An Enquiry into the Nature and Order of Bees. By Rev. John Thorley. 1765.

An Essay on the Management of Bees. By John Mills. 1766.

The Practical Bee Master. By John Keys. 1780.

Antient Bee Master's Farewell. By John Keys. 1796.

A Treatise on Bees. By Robt. Huish. 1817.

The Apiarian's Guide. By J. H. Payne. 1833.

Naturalists' Library. Vol. VI. Edinburgh. Sir W. Jardine, Bart. 1840.

The History and Management of Bees. By John Wighton. 1842.

Practical Bee-keeper. By John Milton. 1843.

Artificial Swarms (a Treatise on). By Ed. Sondamore, M.D. 1848.

On the Management of Bees. By Thos. Nutt. 1848.

The American Bee-keeper's Manual. By T. B. Miner. 1849.

The Hive and Honey Bee. By H. D. Richardson. 1849.

Bee-keeper's Manual. (3rd edition.) By Henry Taylor. 1849.

The Honey Bee. (An Essay reprinted from *Quarterly Review*.) 1852.

The Handbook of the Honey Bee. Slater's. 1850.

Handy Helps. (Bee Hives and Honey.) 1865.
Buzz-a-Buzz, or, The Bees. A Translation from the German, by Rev. W. C. Cotton. 1872.
The Apiary. By Alfred Neighbour. 1878.
Bee Culture. By Thos. G. Newman. 1879.
Calendrier Apicole. By M. Hamet. 1870.
The Italian Bee. By H. C. Hermann. 1860.
The Dzierzon Theory. By Berlepsch. 1877.
Manual for the Many (Bee-keeping). By J. H. Payne.

The Librarian regretfully notes the absence from the Library of Vol. I. of the *British Bee Journal*. He knows that the volume is 'rich and rare.' But as no Bee-Library can be said to be complete without a perfect series of the *Bee Journal*, he desires respectfully to appeal to some member of the Association kindly to supply this vacuum. Such an act of self-denial would be appreciated.

The Quarterly Conversazione of the Association took place at 416 Strand on Wednesday, October 12th. Present, T. W. Cowan, J. M. Hooker, H. Jonas, Jesse Garratt, G. Allen, A. H. Heath, C. F. Williams, F. N. Jackson, Rev. F. T. Scott, S. J. Baldwin, Rev. E. Bartrum, F. H. Lemare, J. Camaschella, G. Henderson, T. B. Blow, D. Stewart, W. Groombridge, Rev. J. Blake Humfrey, H. G. Morris, J. Douglas Dick, G. D. Clapham, &c.

T. W. Cowan, Esq., of Horsham, was voted to the chair. The Chairman, before calling on the Rev. H. R. Peel, Hon. Sec. of the Association, to read his paper, expressed his regret that the President of the Society, the Baroness Burdett-Coutts, who had intimated her intention of occupying the chair, was unable to be present

County Bee-keepers' Associations: their Objects and Development.

I have undertaken to read a paper upon 'County Bee-keepers' Associations' in place of the one promised for this Quarterly Meeting by our good friend, the Rev. George Raynor. From a pressure of more onerous, and perhaps less agreeable duties, he is compelled to postpone his paper upon 'Hives and Bee-houses' until a more convenient season. My only qualification for assuming this task is that I am both the Secretary of the Central and also of one of the County Associations, and therefore am, as it were, behind the scenes of each, and am acquainted with the requirements and necessities of both. I may add that before writing this paper I communicated with the secretaries of all the existing County Associations, asking them for suggestions of any kind, and that I have, as far as possible, embodied in my paper the substance of the answers which have been so kindly sent to me.

In treating of County Bee-keepers' Associations, I shall be obliged to trace their history from their commencement; but my audience need not be alarmed at the prospect of a long detention, as their history is a brief one, and there is but one source from which materials for such a history can be collected. That source is the monthly paper known as the *British Bee Journal*, which has been from the beginning the organ and mouthpiece of these County Associations, and without the aid of which the great confederation which now represents the bee-keeping interest in England would, perhaps, never have existed: I say in England, for Scotland is the fair and legitimate field of the Caledonian Apiarian Association; and as yet no County Bee-keepers' Association has been formed in Wales. More than one cry, however, has found utterance in the *Journal* for some one to come over to Wales and help its inhabitants; and I believe that it only needs a tour of the Bee Tent, such as was made last year in Ireland, to make each Welsh county break forth into a Bee-keepers' Association. Ireland, since that tour, has formed an Association of its own, and is engaged in forming more than one Association for the Irish counties. When I speak, then, of a great confederation, as now in existence, I refer only to the counties of England; and the epithet I have used may seem presumptuous, but I believe it most sincerely to be a great confederation,—great in its capabilities of development, and in its powers of good for the future. Numerically, it may not be great at present, but even now it is not to be despised.

Many persons, friends as well as foes, have called attention to the list of members of the British Bee-keepers' Association, and expressed surprise that we have not a larger number. 'For an Association ranging over the whole of England, we should have expected,' they say, 'to have seen at least twice or three times the number.' But I always reply, 'Wait a bit; you have not seen the whole family as yet. You have only seen the parents. You have still to be introduced to a rising family of children, not to speak of the prospect of several more olive-branches to follow.' This year, for the first time, we have been able to furnish such unbelievers in the greatness of our confederation with the names and ages of all the children who have been born as yet, together with a statement of their annual incomings. Through the kindness of the honorary secretaries of the County Associations in responding to the request of the British Association, a little volume was placed in the hands of our President at the South Kensington Show in July last, containing the reports and balance sheets of the Central and Affiliated Associations for the past year; and this volume has enabled me to give you the following returns:—

The British Bee-keepers', or parent Association (founded 1874), at the close of 1880, numbered 300 members, and its income for the year was 675*l.* 10*s.*; Lincolnshire (founded Oct. 1875), 266 members, income, 85*l.* 4*s.* 11*d.*; Devonshire (founded Nov. 1875), 104 members, income 101*l.* 4*s.* 6*d.*; Dorset, 69 members, income, 61*l.* 5*s.* 7*d.*; Shropshire, 53 members, income, 38*l.* 3*s.* 11*d.*; Hertfordshire, 260 members, income, 167*l.* 19*s.* 2*d.*; Surrey, 100 members, income, 81*l.* 2*s.*; West Kent (Nov. 1878), 97 members, income, 59*l.* 1*s.* 5*d.*; Warwickshire (Sept. 1879), 85 members, income, 98*l.* 19*s.* 4*d.*; Berks and Bucks, 70 members, income, 23*l.* 15*s.*; Suffolk, 62 members, income, 61*l.* 8*s.*; Essex, 81 members, income, 30*l.* Total members, 1476. Total income, 1483*l.* 13*s.* 10*d.* These returns are made up to the close of the year 1880. So that in December there were 1487 bee-keepers, or well-wishers to bee-keeping, linked together for one common object in this confederation, and 1483*l.* 13*s.* 10*d.* honestly spent in promoting it. I believe that the returns for the year 1881 will show a large increase both of members and of incomes. In Herts, which is the only county about which I can speak with certainty, the number of the members of the County Association has risen from 260 in December last to 330. At the present time, I must also, in proof that our confederation is not an insignificant one, point to the names of those who have promised us their support as Presidents of our County Associations. If any one will examine the list of these names, he will find two members of the Royal Family the Princess Christian and the Duke of Connaught—the Archbishop of Canterbury, and the Lord Lieutenants of several counties. In the list of Vice-Presidents, he will find a large proportion of the Peerage of England, and most of the members which represent their respective counties in the House of Commons. Such a list of names as encouragers and supporters of our attempt to make bee-keeping one of our national industries, together with the name of the President of the British Bee-keepers' Association, which alone is a guarantee for our honesty of purpose and resolve to carry that purpose out, will, I

think, convince most unprejudiced persons that our confederation is not deficient in greatness either as regards the present or the future.

Now how did this confederation arise? It may be interesting to some persons to know that the idea of any kind of Bee-keepers' Association at all was first started by a correspondent signing himself 'H. W. T.' in the first number of the *Bee Journal* that was ever published—the number for May 1st, 1873—and that it reached the Editor almost too late for insertion—after the principal matter of that number had been set up in type. The Editor, however, considered the scheme proposed so worthy of consideration and discussion, that he printed it on a supplementary page in order to bring it before the notice of the public as speedily as possible. The proposal of 'H. W. T.' was to set on foot a Bee-keepers' Guild, consisting of members paying such yearly subscriptions as might be agreed upon, and consenting to such rules as might afterwards be drawn up. The proposer was of opinion that the Guild should be very closely connected with the *Bee Journal*, and that the advantages thereof should be part and parcel of the same scheme. He advocated the establishment of a central market or depôt for the sale and purchase of bees, honey-comb, honey, and every kind of bee-gear. A company of voluntary shareholders was to be formed from the members of the Guild, with limited liabilities, and entitled to certain profits upon the principle of any other public company. A system of prizes was sketched out for honey and bee-gear of any description, or any novelty connected therewith, the prizes to be awarded at the Shows of the leading Agricultural and Horticultural Societies of the kingdom, who, it was thought, would appoint judges to pronounce upon the merits of the exhibits.

The idea thrown out by 'H. W. T.' seems to have met with general approval. The title of 'guild' was, however, not so universally approved. To many it seemed to savour of affectation. 'What's in a name?' says Juliet. But we all know that there is a great deal in a name; and, I think, that in the present day, at all events, it is a happy thing for us that we were not named a guild. We should be ranked now with the æsthetic fraternity. We should be said to be engaged in a bee-cult instead of bee-culture; whilst the sunflowers, which are so often seen near bee-hives, would give a colouring to the accusation. No one can reasonably object to the name of 'Association' which ultimately prevailed.

The year 1873 seems to have passed away without any steps being taken to give the suggestion of 'H. W. T.' some practical effect. 'H. W. T.' himself seems to have been alarmed at his own boldness, and to have acted like the little boy immortalised by *Punch*, who chalked up 'No Popery' on the wall, and then ran away. 'H. W. T.' is heard of no more. The Editor of the *Bee Journal*, however, did not let the matter drop so easily; and in the May number of the year 1874, we find that a show has been arranged to take place at the Crystal Palace in September; that subscriptions have been collected for prizes; and that the subscribers to the Prize Fund are invited to attend a meeting at 108 Camden Street, N.W., near the Camden Station, on the North London Railway, with a view to laying the foundation of a National Association for the promotion of apiculture. The meeting duly took place. The Hon. and Rev. Henry Bligh took the chair, and (as it appears) remained in it from 4 p.m. until 8 p.m. Those four hours were of indescribable value to British bee-keeping, for, in that space of time, the gentlemen present (amongst them being the well-known names of Symington, Hooker, Cheshire, and Hunter) constituted themselves into a society called the 'British Bee-keepers' Association,' and took over from the Editor of the *Journal* all matters connected with the Show at the Crystal Palace, as well as the funds collected for the purpose of the Exhibition.

The Association having been formed, the Show having been held, and members having been enrolled from all parts of England, the spirit of propagandism and missionary zeal seems to have manifested itself in the heart of the British bee-keeper. More than one who came up from the provinces to witness the Metropolitan Exhibition, at the Crystal Palace, burned with a desire to transport the Show, or a similar one, into his own county, and impart to his friends and neighbours a knowledge of the marvels, in the way of bee-keeping, which he had seen in London. Mr. R. R. Godfrey, present hon. sec. of the Lincolnshire, seems to have been the pioneer in this direction. An exhibition of bees, hives, and honey, was grafted upon the Show of the South Lincolnshire Horticultural Society at Grantham in July 1875, and proved most attractive and successful. Thus was laid the foundation of the Lincolnshire County Association, which, under the guidance of Mr. Godfrey, has grown with each succeeding year. It was the exhibition at Grantham which seems to have suggested to Mr. Charles Tite, then residing, I think, at Yeovil, in Somersetshire, that the knowledge of bee-keeping would be most widely diffused by the formation of County Associations. This gentleman is clearly the founder of these important societies, and deserves the credit of their origin, as will appear from the following extract from a letter which appears in the September number of the *Bee Journal* in the year 1875, signed 'C. T.,' and headed, 'Proposed County Associations of Bee-keepers.'

'The success of the exhibition at Grantham must have led hundreds of your readers to see how much similar undertakings, in various parts of the country, would do to spread a knowledge of bees and bee-keeping. Can nothing be done to form local societies of bee-keepers? I think that local effort might, with great advantage, be brought to bear. I would, therefore, venture the following suggestions:—

'1. That steps be taken for opening communication between the principal bee-keepers of each county, or such groups of counties as could conveniently act together. This could be done by publishing in the *Journal* a list of those willing to join such associations with full names and addresses.

'2. That when a sufficient number of names has been thus obtained, a meeting be held at some convenient place, in each district, for the appointment of a committee, with chairman, treasurer, and secretary.

'3. That the objects of the Local Societies be the same as those of the Central Association—the management and improvement of bee-culture.

'Subscriptions, rules, and other matters of detail, could easily be settled at the district meetings. I make this suggestion for several reasons. In the first place, I think it would excite greater interest in the rural districts, if a number of bee-keepers could agree as to some method of taking united action. They could exhibit, at local Flower shows, and thus shed a light upon those who keep bees in the old grope-in-the-dark plan. They would probably be able to offer prizes for honey, &c., even if the prizes were small, where nothing is now done in that direction. Then, again, they could spread information on their favourite branch of study by means of lectures and cheap literature. Should any of your readers, who reside in Somerset or Dorset, think my suggestions worth trying, I shall be happy to co-operate.'

Well done, 'C. T.' One volunteer is worth ten pressed men. There is an editorial note attached to Mr. Tite's letter which I think should be recorded also, as it marks a step in the history of these Associations. The Editor says:—

'Our correspondent's suggestion has the right ring in it, and we shall be happy to second any efforts that may be made in the direction indicated; at same time we fear that unless a set of rallying points be first formed, few Associations will be established. We

therefore suggest that those anxious for the formation of Bee Societies in their respective localities should volunteer to act as Secretaries for the time being, and invite the co-operation and assistance of bee-keepers in their neighbourhood. We shall be glad to publish a list of such names.'

The Editor's note was not without results. In the October number of the *Journal* for 1875 I find the following notice headed 'County Associations:'—

'As a beginning we have received the names, as under, of two gentlemen willing to act as Secretaries during the formation of Bee-keepers' Associations in their respective counties. We trust that in the ensuing month others will declare themselves, and that in connexion with the London Central Association a great work may be accomplished. The names are—Charles Tite, Wyndham Street, Yeovil; William N. Griffin, Rock House, Alphington, Exeter.'

These two gentlemen, well known now to all bee-keepers in the south-west of England, are entitled to the grateful acknowledgments of the bee-keepers in every part of the country. Like the Roman of old who leaped his horse into the gulf yawning in the Forum at the call of patriotism, so did these gentlemen plunge into the gulf of complaints, correspondence, clamour, criticism, and all those other ills that a Secretary is heir to, which was then opening beneath their feet and demanding its first victims.

But our Lincolnshire friend is not far behind them. First in the correspondence of the same number of the *Journal* (October 1875) appears a letter headed again, 'Proposed County Associations' (the name is becoming familiar as a household word), and signed 'A Mid-Lincolnshire Bee-keeper.' He says:—

'The proposal of "C. T." in the September number of "our" *Journal* is, in my opinion, the very thing wanted to bring the country at large into co-operation with the London Association. I have no doubt that, with the help of the *Journal*, that Association is doing good: but the *Journal* is the mainspring of all good that may have been done in the counties. I would now suggest that Grantham, having taken the lead in the holding of County Bee Shows, do also take the lead in forming the first Branch Association. I know there are men living in the town well able to raise the banner, and when once raised I have no doubt others would flock to it. I would just venture to make one more suggestion, viz. that the following counties be included in the branch, and that it be called "The Lincoln, Rutland, and Nottinghamshire Branch of the Bee-keepers' Association." Hoping soon to see a move made in this direction, I beg to subscribe myself—A Mid-Lincolnshire Bee-keeper.'

I think we can all form a pretty good guess as to who that 'Mid-Lincolnshire Bee-keeper' was, and I also think that if he were asked his opinion now, he would tell you that he finds Lincolnshire a sufficiently wide field for his energies, and that one county affords quite sufficient work for any secretary.

The next link I can find in the history of County Associations is a letter in the *Journal* headed, 'An Association for Dorset.' The writer says:—

'An effort is being made to get up a County Association for Dorset. There are several extensive apiaries in the county, and the Dorset clergy have long been trying to teach their cottage neighbours that bee-keeping on the humane principle will pay far better than the old system. The exhibits of honey at the district Flower shows have been very passable, notwithstanding the badness of the season; but, of course, only the cream of the honey has been displayed.' The signature to this letter is, 'Novice.' I do not think that the present Honorary Secretary of the flourishing Dorsetshire Association could shelter himself under this pseudonym in 1881, however humbly he may have thought of himself in 1875.

In the December number of the *Journal* for that year we find the movement for County Associations gaining strength rapidly. 'Our readers,' writes the Editor, 'will be glad to know that the County movement is progressing. Lincolnshire has now an Association, with the Rev. D. W. Pennell, of Grantham, for Hon. Sec. Devon and Exeter are enrolled under the presidency of S. Bevan-Fox, Esq., a bee-keeper of world-wide repute, with W. N. Griffin, of Alphington, as Hon. Sec. Somerset—Mr. O. Poole, of Uphill, Weston-super-Mare, is working vigorously in the formation of an Association, and has just sent us a report. Liverpool—William Watkin, Esq., of Roby, is the volunteer Hon. Sec., and is anxious for work. Yorkshire—J. G. Kirsten, Esq., of Bridlington, Yorkshire, is willing to work, but the state of his health has caused him to leave England for the winter months. Dorset—Mr. Charles Tite will work for Somerset and Dorset. Hereford and District—An attempt will shortly be made to improve bee-culture in this fertile district. Ten pounds worth of bar-framed hives is to be offered to cottagers gratis, on condition that they adopt as a motto, "Never kill a bee."' Nor did the enthusiasm kindled in the hearts of county bee-keepers abate in the summer of 1876. In the June number of the *Bee Journal* for that year I find proposals made to form County Associations for Worcestershire and Staffordshire, whilst shows were held at Exeter, Worcester, Wolverhampton, and for the second time at Grantham. In January 1877 a letter appears from the Hon. and Rev. C. Feilding, one of the best friends of our Association, announcing that he is endeavouring to form a Shropshire Association, and asking all those who would support the movement to put themselves in communication with him without delay. The desire for more knowledge of bee-keeping seemed to be spreading over England like a flood, and everything was promising a bright future for bee-keepers in every county of England,—

> 'There is a tide in the affairs of man
> Which taken at the flood leads on to fortune.'

Had the British Bee-keepers' Association taken this tide of enthusiasm at the flood, a knowledge of the art of bee-keeping would soon have been spread throughout the length and breadth of the land; but, alas! instead of seizing upon the great opportunity thus offered to them, the Committee of the Central Association were divided amongst themselves, and engaged in what the great Duke of Wellington declared to be the worst of all wars,—a civil war. Private jealousies and animosities were allowed to prevail over a regard for the general good, and those in authority seem to have spent their strength in efforts to undermine one another instead of setting an example of unity and concord to the young Associations which were springing up around them. The records of the British Bee-keepers' Association from May 1877 to May 1878 are of a very painful character, and it is well to draw a veil over them—a veil only to be raised as a warning whenever indications of the same self-seeking and jealous spirit may be discernible, either in the British or in County Associations. The natural results followed. Members fell away from an Association which they thought was doing no good, subscriptions ceased, and on the 25th of March, 1878, only twenty persons could be found to advocate the continuance of the British Bee-keepers' Association.

Having no longer any central authority to look to, many young Associations were nipped in the bud for want of support and encouragement. The weaker went to the wall. The stronger prepared to detach themselves from the British Association, and to maintain an independent existence of their own. There occurred on a small scale that same process of disintegration in our confederation which we now see taking place in the Turkish Empire. Just as Bosnia and Herzegovina, Servia and Bulgaria, found that the government at Constantinople was unable either to protect or control

them, and so threw off the yoke to which they had submitted, and asserted their claim to autonomy and independence, so did the Lincolnshire Association begin to draw away from the British, and offer itself to the adjacent counties as a centre of government. The British Bee-keepers' Association was regarded as the Sick Man, the name which has so often been applied to the decaying Ottoman Empire. Its dissolution was regarded as a matter of course. Arrangements were being made for its funeral, and the mourners were already going about the streets. But just as the Sick Man of Turkey has often disappointed the expectations of Russia and other anxious friends, so did the British Bee-keepers' Association revive all of a sudden, and enter upon a new lease of life. From that little remnant of twenty who had voted for the continuance of the Association in its darkest hour, the Society was reconstructed and established on a new basis. Signs of vitality soon began to appear.

At the Annual General Meeting of the British Association held on Wednesday, Feb. 12th, 1879, the following subject was placed on the agenda paper for discussion: The promotion of County Associations in connexion with the British Bee-keepers' Association on the model of those existing in the counties of Lincoln, Devon, Dorset, and Salop. The Bee Tent was constructed, and began to traverse the country. Mr. S. J. Baldwin was appointed as expert to conduct the manipulations and give lessons in bee-management. The existing Associations began to lift up their heads again, and to return to their former allegiance. The trumpet gave no uncertain sound, and the other counties began to array themselves for the battle. West Herts commenced its organization, and soon developed into an Association for Hertfordshire. West Kent followed suit under the able management of Mr. Garratt. The counties of Surrey, Warwickshire, Suffolk, Berkshire, Buckinghamshire, and Essex, rallied their bee-keepers together in 1879 and 1880, and formed Associations which, under the guidance of able and energetic secretaries, are now working most successfully. Better men for the task could not have been found than the Rev. W. Stewart Walford, Mr. Noble Bower, Mr. Lemare and Captain Campbell, Mr. Cartland, Mr. Darby, and Mr. Aubrey.

This present year is marked in our history by the rise of an Association for Wiltshire, originated by the Rev. W. E. Burkitt, and of one for Norfolk, the credit of which must be given to the Rev. Blake Humfrey, and our old friend,—I mean our friend of long standing, the Rev. J. Lawson Sisson. Before the close of the year I hope to be able to announce the formation of other Associations. I am in correspondence with a gentleman who will, I hope, not shrink from the somewhat formidable task of establishing an Association for the North Riding of Yorkshire; and if this is done, I have no doubt that the East and West Ridings will follow the example set to them. I have hopes of an Association for Sussex, and one for Cornwall; and I cannot believe that our friend, Mr. Charles Tite, who is the founder of this confederation, will allow his own county of Somerset to hold itself aloof, and not cast in its lot with the British Bee-keepers' Association and those affiliated to it. I may add that the Lincolnshire Secretary, Mr. R. R. Godfrey, writes to me that he is inundated with communications from bee-keepers in the counties of Lancashire, Leicestershire, Northamptonshire, Rutland, Nottinghamshire, Huntingdon, and Cambridgeshire, who ask for advice and information in endless ways. 'I would suggest,' he says, 'that the British Association should storm each county during the coming winter by means of meetings held on a bold scale, which should be held on a market day in the various market towns in each county. The British would do a grand stroke,' he says, 'if it could bring about the formation of Associations in the counties named.'

Each of these County Associations has the same object before it, viz., to spread a knowledge of the best systems of bee-management within the limits assigned to it, and to make bee-keeping a national industry. It is very important, I think, that no Association should take a narrower view of its mission than this. There has been, in some cases, a tendency to enter into a crusade against straw skeps, and to think that if an Association can supersede straw skeps by wooden hives, its great object has been accomplished. That is a very narrow view to take of its mission. The aim of each County Association should be, I think, to teach its members how to make the most of every sort of hive, whether made of straw or wood, and of whatever shape. The cottager is generally found to be accustomed to the straw skep, and to entertain a conservative affection for it. Then why not teach him how to turn his dome-shaped skep into a flat-topped one, and instruct him in the art of supering? He will soon leave off killing his bees in order to get their honey; and he will soon want to know more of what goes on inside his hive, and to talk of making a hive with moveable frames, and all the modern improvements.

The means by which this knowledge of bee-keeping is to be disseminated will, I think, be found to be pretty much the same in all well-conducted County Associations. Very much, of course, depends upon an Association being well organized at the outset. The main point is to choose a good Secretary—I might say to find one; for there is no process of natural selection for secretaries. There are not so many anxious for the post that they fight and devour one another until the fittest alone survives. Still thirteen counties have thirteen excellent secretaries at their respective helms, so that it is not impossible to find them. I need scarcely say that the motives of a secretary in accepting office should be above suspicion. There must be a perfect assurance in the minds of the members that he is not seeking his own advancement, or any pecuniary benefit to himself, or the Association will fall (as has been the case) to the ground. He must be a good man of business, and be conversant with the manner in which public affairs are generally conducted; and I think he will find it most satisfactory, both to himself and to the Treasurer of the Association, if they settle their accounts—as we do in the British—at the close of every month.

As Associations develope, it will be found necessary, I think—and Mr. Godfrey confirms me in my opinion—to divide the county into districts, and appoint district-secretaries to act in conjunction with the chief secretary. They will be found invaluable in the arranging of shows if the annual show is moved from one town to another; in the organizing of lectures and addresses within their respective limits; and of regulating the uninterrupted circulation of the *Bee Journal*, or any other channel of information authorised by the Association. An Assistant-Secretary, where the funds admit it, will be found of the greatest advantage, not only to the Honorary Secretary himself, but to the interests of the Associations generally.

Any man of known honesty and integrity will serve for a Treasurer, and if no such *rara avis* can be found in a county (even with the aid of the lantern of Diogenes), a county bank will generally be found willing to undertake this office, and to discharge it most efficiently.

Having secured a Secretary and Treasurer, a County Association will next want a President, and I should always advise that (other things being equal) the Lord Lieutenant of the county should be invited to preside over it. No one can certainly object to the Queen's representative as not being a proper person to preside over bee-keepers. Several County Associations are presided over by ladies, such as the Berkshire and Buckinghamshire by the Princess Christian, and Wiltshire by the Marchioness of Aylesbury. The British

Association cannot, of course, object to ladies being appointed to the office of President, since it is itself governed by a lady.

The appointment of Vice-Presidents will follow in due course, and I believe that the nobility and leading gentry of any county will always be found ready to give their support to a County Association if it is known to be established on a sound basis, and to be actively engaged in doing good. The Secretary of any Association which intends to ally itself with the British should be careful to inform the President that, according to the rules of the British, each President of an affiliated County Association becomes an *ex-officio* Vice-president of the Central or British Association, and will one day be invited in that capacity to distribute the prizes at the Annual Metropolitan Show. I may say here that the Princess Christian, the President of the Berks and Bucks Association has, at our President's request, announced her willingness (as far as such long engagements can be made) to give away the prizes at South Kensington next year, and to redeem the promise which she was unable to fulfil in August last through the sudden death of a relative.

There is another official, who will, I think, now be found indispensable to the working of a County Association, and that is the County Expert. Mr. S. J. Baldwin has, to borrow the language of dramatic circles, created this *rôle*, and has taught county experts what is expected of them. He has done the Association a double service in this respect, and deserves a proper acknowledgment for it. A county secretary will soon find himself besieged with applications for a Bee Tent to attend the Horticultural and Cottage Gardens Shows in his county. He may find volunteers who will accompany it, and deliver gratuitous addresses without any charge to the Association, but, as a rule, he will have to depend upon an expert for the manipulations and short explanations, which make the Bee Tent so attractive. He will have to cast about him for some young man who is an enthusiast in bee-keeping, having had some experience in bee-management, and is able to express his thoughts with tolerable fluency. I believe I am justified in saying that Mr. Abbott, of Southall, would be willing to take such a young man as a pupil, and give him instruction in the more advanced branches of the art for a moderate remuneration; and that Mr. Baldwin, or one of the experts employed by the British, would be willing to allow him to accompany him in his missionary tours, and give him an insight into work in the Bee Tent. A young man, whose heart is in his work, will soon acquire the skill and confidence which are necessary for the expert, who is both manipulator and lecturer also.

But the duties of a County Expert are by no means confined to attending upon the Bee Tent. As soon as an Association can command sufficient funds, there is no better way of spreading a knowledge of bee-keeping than by sending the expert on a tour of hive inspection to the homes of all the members of the Association; bee-keeping will soon become popular then, and the cottagers will join; there will be no more superstitions about bees; no more propitiations of swarms with fresh pilchards. As the expert goes to and fro, knowledge will be increased; his visits will be duly announced beforehand, through the district secretaries, and be eagerly expected by the members. Two inspection tours should, of course, be made annually, if possible, in spring and in autumn; but if the funds are insufficient for two visitations, then I should recommend the spring time in preference to the autumn, and for a two-fold reason: (1) Because though the proper wintering of bees is very important, the spring feeding and strengthening of stocks before the honey harvest commences are even of more importance still; and (2) Because the expert will be furnished with a receipt-book, and in the spring time, when the heart lightly turns to thoughts of love and honeymoon, and soon, material honey for the breakfast-table of the new *ménage*, members will open their hearts and their purses at the call of the expert, and pay their subscriptions early in the year. There is no better way, too, of obtaining new members. Neighbour Jones will say to neighbour Smith, 'Here's the bee-man a-coming round next week. He's a-going to overhaul my bees, and help me get 'em ready for the summer. Why don't you join the 'Sociation, and get yours fettled up too? He'll have his book with him, and give you a receipt all square;' and so neighbour Jones introduces the expert to neighbour Smith, and another member is enrolled in the ranks of the Association. This process is repeated in every cottage which the expert enters, and the result ought to be highly satisfactory to the secretary.

At the conclusion of his tour the expert will make his report, which will eventually be printed and sent to all the members, who will thus learn the state of bee-keeping in their county. Let me give you, as we are now on the most practical part of our subject, the report handed in to the Hertfordshire Association by our county expert, Mr. T. B. Blow, of Welwyn,—a most excellent expert, let me say, who has the interests of our County Association thoroughly at heart.

'I have to report,' he says, 'that the spring visit to the members of the Association in 1881 was commenced on March 3rd, and was completed on April 30th. The actual number of days occupied was thirty-two, and during that time 250 members have been called upon, and 842 hives of bees examined. The actual time taken up in examination of hives and giving of advice has been 121½ hours, showing an average of slightly under half an hour to each person. The number of miles travelled has been about 647. [Mr. Blow is a good bicyclist.] In only two cases has the allotted time been exceeded. Taking the apiaries on the whole throughout the county they may be said to be in good condition, the proportion of good to bad being 7 to 1. A considerable number of stocks have perished during the past winter: Tuesday, Jan. 18, being a very fatal day, many having then been blown over and destroyed. Under death from other causes, death from starvation in bar-frame hives claims by far the greatest number of victims. The starvation has not, in my opinion, resulted from the bees having been left with a short store at the commencement of winter, but from insufficient covering on the top of the hive, and from neglect, or want of knowledge of contracting the space of the hive by dummies. In many cases only one thickness of carpet was placed on the top, and often this had been shifted out of place in the act of putting on the roof, thus causing a continuous draught through the hive. In one case where the bees were still alive no quilt at all was on the hive—simply the roof. I could not ascertain how long this had been the case. The number of bar-frame hives in the members' apiaries is 504, and of skeps 338; so that it will be seen that the frame-hives have come into very general use, but certainly a proportionate amount of knowledge respecting their management has not been acquired with them, and I am forced to the conclusion that in the hands of inexperienced persons they are far worse than straw skeps. Information respecting them was, however, eagerly sought, and I have no doubt that a great improvement in their management and wintering will be made. With skeps fewer deaths have arisen from starvation, owing I think, to the fact that less care is required in wintering, and the management is better understood. A large number had, however, died out through queenlessness. The cost of bar-frame hives is a great complaint among cottagers, and the attempts at home-made hives leave much to be desired. I think that the Association should endeavour rather to show how the honey may be collected in the best form from straw skeps than to

advocate the use of bar-frame hives amongst cottagers. The small, though very good, collection of Mr. Beard of Northall deserves mention for the reason that the whole of his skeps are adapted for the collection of honey in sectional supers, and that too at small cost. The hives are cased in with a rough box and roof. Chaff is put in to the level of the top of the skep, and it is then quite easy to put on the crate of supers with a board. Only three cases of foul brood have been met with. The chief centres of successful bee-culture seem to be Hadham, Ashwell, Baldock, Hitchin, and Welwyn. The west of the county is certainly far behind the east at present in this respect; the latter is, however, behind in point of number of members and the amount of subscriptions paid. About twenty-five members have been added to the Society.'

I quote this report at length because I believe it will be useful to other county experts, and show them the points to be attended to. Time will not allow to say more now respecting the county expert, but I lay the utmost stress on the usefulness of his office and its importance to a County Association. The expert acts as the connecting link between the members and the Secretary, just as the Secretary himself acts as a connecting link between his County and the British Bee-keepers' Association.

The Lincolnshire Secretary says, in a letter to myself, 'I should like to have at least three experts; one for South, one for Mid, and another for the North division of Lincolnshire, and I don't despair of having them, but it will not be *this* year.' We will hope there is a good time coming, Mr. Secretary.

When a County Association has a President, Vice-Presidents, a Committee, a Treasurer, a Secretary, and an Expert, its organization might, perhaps, be thought complete; but it is not so. A County Association, to be properly conducted, ought certainly to affiliate itself with the Parent Association. An affiliation fee of one guinea must be paid into the treasury of the British, before the daughter can be received as a member of the family; but we do not fall into the error which caused the American colonies to sever themselves from the mother country. We do not expect Taxation to be submitted to without Representation. We do not expect the County Associations to co-operate with us in our great work of teaching bee management to Britain, without giving them a voice in our councils, and an opportunity of making known any grievance under which they may be smarting. Every member of a County Association should, in my opinion, have a vote in the election of officers—I mean a real expression of his will recorded on a printed voting paper, and attested by his own signature—such a right as each member of our British Association is entitled to, and in most cases exercises. All the members cannot attend general meetings, and if they do, they usually find their committee chosen for them beforehand. This is not the case if you make use of voting papers. Each man can give his vote then wherever he may be, and the giving of that vote makes him take a greater interest in the affairs of the Association. He feels himself, indeed, on a level with a county freeholder, when he has to give his vote for the election of two members to represent him in the Bee Parliament, held at 446 Strand, London. These two representatives, when elected, have a right to attend the Quarterly Meetings of the Central Association, and to bring forward any matters with which they may be entrusted by their constituents. Free speech and fearlessness are to them allowed. Any suggestions which they may make are gratefully received by the Central Committee, and deliberated upon at their next meeting. Any questions that may be put receive a full and speedy answer. If personal attendance be impossible, letters may be written to the Secretary of the British, and they will receive as much attention as though the writers of them had been actually present. I am sure that I am expressing the sentiments of every member of the Committee of the British Association when I say that we welcome the appearance of the County Representatives at our Quarterly Meetings, and that we are glad to avail ourselves of their counsel and suggestions.

Such, then, is the organization of a well-conducted County Association so far as my experience has reached. The objects towards which this organization is directed are, for the most part, four in number:—

1. The circulation of the *Bee Journal*, and other publications amongst its members. With regard to this I may say that the most satisfactory plan appears to be the division of the County into a certain number of districts, making a district for every ten or fifteen members, who are instructed to keep the *Journal* one or two days for reading, and then to transmit it to their nearest neighbours. These instructions are not always attended to faithfully. Some members will keep the *Journal* in their houses for a week, or a month, or two months; whilst the other members write and complain that it has never been sent to them. We have tried every means, I think, in Hertfordshire, to put a stop to this irregularity of circulation. We have asked each member to inform us if he or she does or does not wish to receive the *Journal*. We have placed those who have been denounced to us as obstructives, on the bottom of the list. We have taken measures for appointing heads of districts to attend specially to the circulation of the *Journal* in their several territories. We have even discussed the propriety of discontinuing the circulation of the *Journal* altogether, but each time we have broached this point, we have been told that the circulation of the *Bee Journal* is the one thing that our members value above all their other privileges: that it is the one thing which binds them to the Association; that if it be discontinued, their subscriptions will be discontinued also; and so we go on with our task in spite of the impediments which are thrown in our way by the thoughtless and inconsiderate few who mar the regularity of our machinery, and retard the education of their brethren.

2. The purchase of a Bee Tent, with a view to its appearance at the Horticultural and other Shows in the County. Every one knows now what a bee tent is, how it is constructed, what is about the cost of it, and whence it can be obtained, so that I need not dwell on these particulars. A picture of the British Bee Tent, which was erected at the South Kensington of 1878, appears in the last number of Mr. Newman's *American Bee Journal*. Much practical knowledge is conveyed to the public through the displays and lectures in the summer time when indoor lectures are out of season, and the admission fee of sixpence a-head is usually found sufficient to recoup the Committee for their outlay in the purchase of the tent at the close of the second if not of the first year.

3. The sending of an Expert to visit the apiaries of members once or twice in the year, and to make a report thereon. I have already spoken as to the importance of this step.

4. The holding of an Annual County Show, at which prizes are awarded for the best exhibits of honey, hives, and bee apparatus generally, and at which the progress made from year to year can be accurately measured. On this point I will only say that it has been found desirable to institute Local Classes at which the members of an Association can compete amongst themselves, and Open Classes in which they can see some of those advances and improvements which are continually being made in the art of bee-keeping. There is a question whether it is better to hold a County Show in the chief town or city of a county, or to move it, annually, from one centre of population to another. I think, that the general opinion of County Secretaries is in favour of the latter plan, as so much information on Bee-keeping is imparted

to any locality in which a show is held. There is also a variety of opinions as to holding a County Bee Show on its own merits independently of any other attractions, or engrafting it on to some large flower show, or any other public gathering. We have tried the latter plan in Hertfordshire with considerable loss, whilst Mr. Godfrey has tried the former in Lincolnshire with considerable success; and, I believe, that if committees have only the courage to make the venture, a well-organized bee show will be found to possess sufficient attractions of its own. I think the experiment has been tried in Surrey, but I know of no other county, with the exception of Lincolnshire, which has held a bee show *pur et simple*.

Connected with the show is usually a Honey Fair, which offers the members great facilities for the disposal of their honey and wax. Those who are thinking of forming Associations are frequently deterred by the fear that their members will be unable to sell the honey which is produced. My experience is that the demand for honey, in an attractive and portable form, is far in excess of the supply. Others here present to-night will, I think, be able to confirm what I say. Mr. Godfrey held a honey fair at Grantham this year, subsequently to the Lincolnshire County Show at Louth, at which, I believe, all the honey offered found ready purchasers. 'We understand,' says one of the Lincolnshire papers, 'that large sales were effected, and good prices realised. With the exception of a few massive supers, and one or two small lots, it may be said to have been a "clear out." Nearly three-quarters of a ton of honey was on sale, the average price being 11*d*. per lb. for extracted honey, and 1*s*. 3*d*. for honey in the comb.' Mr. Huckle informs me that nearly the whole of the honey exhibited in an attractive and portable form at the late South Kensington and Dairy Shows was disposed of at good prices, one exhibitor (an artizan) alone disposing of 40*l*. worth at the two shows. Another member of our Association has been able to dispose of a quantity of his honey to a West-end tradesman at 1*s*. 6*d*. and 1*s*. 9*d*. per lb. wholesale. Mr. Blow informs me that he is anxious to purchase a quantity of honey from 1 cwt. to 2 cwt. at 1*s*. 2*d*. per lb., but cannot get it anywhere. He also tells me that during his recent visit to Yorkshire, Mr. Wm. Foggett, of Thirsk, informed him that he was open to purchase bees-wax in large quantities, and was in the habit of giving 1*s*. 8*d*. per lb. for it. Mr. Blow is of opinion that no difficulty will be found as to the disposal of any quantity of honey, *i. e.*, honey collected well. Another correspondent says, 'Those who have honey lying on their hands are those who take no pains to make it attractive after it has been removed from the hive.' Depôts for the sale of honey have been tried by some Associations, but the supply has been insufficient to keep them going. Depôts for the sale of hives and bee apparatus have also been tried, but not, I think, with any great success.

I have been asked, 'What has the Central Association done towards the development of these Associations?' My answer always is that it has done very much. Even in the days of its temporary decadence, when it was not strong enough to hold the annual show as usual, it was not unmindful of the County Association. The silver and bronze medal were sent to the County Secretaries for competition at their shows, as prizes for the best exhibits of honey, and the certificate of the Association was also awarded as a honey prize. As soon as the Association righted itself, the loan of the Bee Tent was offered to all affiliated Associations for their county show; experts were found them if required, and I wish my hearers to understand that this combination of Bee Tent and expert represents (on a fine day, and where there is a good attendance), it may be, 10*l*., it may be 15*l*., or it may be 20*l*. of gross receipts. We calculate that the average net profit made from the Bee Tent on ordinary occasions is not less than 5*l*. per show. Besides this, the county representatives have been admitted to the Council of the British Association.

Let me add also that County Associations enjoy almost all the privileges accorded to members of the British. They can use the honey market, which is under the charge of Mr. S. J. Baldwin. They can purchase the publications of the Association, which are in such demand that they are now most of them out of print, at the trade price, and I do not think that we can go any lower than this,—it will not do for us to undersell the trade.

What more can the Central Association do for the Counties? Here, again, my answer still is, Very much. The Central Association can make the development of these County Associations its first and foremost object, and in no other way, I believe, could a knowledge of bee-keeping be more effectually or more rapidly spread over England. If it is only recognised that we are all members of one family,—all one great confederation, as I said at the commencement of this paper, there will be no room for any feeling of jealousy, that the County Association should be exalted at the expense of the Central. If the County Associations are flourishing and doing their work well, the credit of their success will be reflected on the British. But I must warn the County Associations not to expect too much. When I invite the County Secretaries to say what they most require, what would most increase their efficiency, and what chiefly retards their progress, there is one general cry, 'Our great want is want of funds—shortness of cash—this is our greatest hindrance.' Help us with grants of money and we shall do great things.

Now I must tell the County Association at once that though I should advocate the most liberal and generous policy possible on the part of the British towards the County Associations, they must not expect to receive grants of money (at least not for the present), and it is simply puerile for any one of them to say, 'If you cannot do this you are no good to us, and we shall walk no more with you.' I must remind those who hold these sentiments of the old fable with which Menenius Agrippa dissuaded the people of Rome from their intended revolt and brought them back to their allegiance,—the fable of the Belly and the Members: the members starved the belly, but they themselves perished in the operation.

The income of the British Association at the end of last year seems to have been a considerable one, as far as Bee Associations are concerned—67*5l*. 10*s*., but with the exception of a small balance of 4*l*. 12*s*. 6*d*. in the Treasurer's hands, the whole of this amount was honestly spent in promoting a knowledge of bee-keeping.

No country bee-keeper, who knows anything of the history of bee-keeping in England, would for a moment wish that the British or Central Association should withdraw from the position it has attained to at the annual shows of the Royal Agricultural Society of England, and at the show of the British Dairy Farmers' Association;—I hope, after the successful experiment of last year, I may soon be able to add at the show of the Bath and West of England Society. No one, I think, would wish to see the annual show at South Kensington abandoned, and our connexion with the Royal Horticultural Society severed.

These shows are occasions on which large numbers of persons of every class meet together, and from which they return anxious to introduce the improvements which they see in bee-keeping, as well as in other matters, into their own neighbourhoods; here the foundations of future County Associations are laid. No one again would, I imagine, wish to check the circulation of *Modern Bee-keeping*, of the Diagrams, and of these Quarterly Papers, by grudging the amount of our printing bill.

Some members of County Associations might point to

the expenses of our Irish Tour last year, and say that 'charity should begin at home,' but they must remember, what we are so often told now, that Ireland is an 'exceptional' country, and that the deficiencies upon that tour were met by private donations, and not from the funds of the Association.

But though we may be unable to help the County Associations with grants of money, we may be able to help them in other ways, and, first, by a piece of advice: We are all suffering from want of funds in the County Associations (I am speaking now as a county secretary); but is not this because we made our subscriptions too low in the first instance? Half-a-crown is the ordinary subscription in many Associations. It is the ordinary subscription in that Association to which we all look up as our elder sister, who sets us a pattern and an example, —the Lincolnshire Association. Lincolnshire has 206 members, but the members' subscriptions for 1880 amount only to 22*l.* 10*s.* I know that it is a very invidious task to raise the amount of subscription to any Society or Association when it has once been fixed; but I think it ought to be clearly stated in every report or prospectus of a County Association that 2*s.* 6*d.* is meant as only the cottager's subscription, and that those who wish to benefit others as well as themselves, and who do not wish to rank as cottagers, cannot be allowed to subscribe less than, at all events, 5*s.* I think we have rated ourselves too meanly; we have been (like Uriah Heep) too 'umble; we have not had courage enough for success in a great undertaking: for, you may depend upon it, that whatever valuation you put upon yourselves, the outside world, even if it takes you at your own valuation, will certainly not rate you any higher. We do more for our members than the subscriptions which they pay warrant us in doing. Just let me tell you, for the sake of illustration, what a Hertfordshire member gets for his 2*s.* 6*d.* subscription: he gets the *Bee Journal*, for which he would have to pay Mr. Abbott 6*s.*; he is admitted free to his county show, which would otherwise cost him 1*s.*, if he went in at the fashionable hour; he has his hives inspected for nothing, which would cost him 7*s.* 6*d.* if he had the expert down on his own account, or 3*s.* 9*d.* if he went shares with a neighbour, in addition to his travelling expenses; he can go into the Bee Tent gratis, at any show in the county, on production of his member's ticket, by which he saves 6*d.* on each occasion, and on production of the same ticket he has free admission to any lectures or meetings which may be held on the part of the Association; so that for half-a-crown he gets about the worth of one pound; and yet you hear people going about and saying, 'I don't see what good I get out of the Association!' I am sure if (as Sam Slick says) 'there's a deal of human nature in man,' there must be an extra quantity of it in members of County Associations.

I would advise all County Secretaries, then, to make a clear line of demarcation between the cottager's subscription of 2*s.* 6*d.* and the gentleman's subscription of 5*s.*, and I think their funds will benefit by the process. Persons who can afford it should give 10*s.* 6*d.*, and the aristocracy of a county should be impressed with the fact that a guinea is the least sum they can give without being considered mean.

One more piece of advice let me give. Secure the co-operation of the public press in your counties; take care that your meetings and lectures and shows are well reported; and let those who have the pen of a ready writer contribute little articles on bee-keeping to the columns of their local newspapers. There is no support so valuable as that of the press; and may I add no greater mistake than to quarrel with a good bee paper when you have one, and scheme about with the idea of setting up another in opposition to it?

And now for something better than mere advice. There is another want experienced by the County Secretaries, as I find from their letters to myself, and expressed with an unanimity which is only surpassed by that produced through shortness of funds—the want of experienced and able lecturers whose coming into a county would awake or revive an interest in bee-keeping. Now I think that as one of the means by which the Central professes to do its great work is by lectures and meetings, the County Secretaries may very fairly ask the British Association to defray the expenses of a lecturer or speaker who should deliver addresses on bee-keeping in the winter or early spring months at meetings previously organized by the county secretary in the principal market towns. If volunteer lecturers could be secured, so much the better for the funds of the British Association. If not, they have at their command a band of lecturers of no mean capacity in their experts, whose charges for a lecturing tour would, I am sure, be as reasonable as possible, and whose addresses would be, perhaps, of a more practical character than those of the majority of amateurs. The county secretary should, I think, make all the arrangements for such a tour of lecturing, and the County Association should defray all expenses of advertising and securing rooms. The Central Association would act liberally if it defrayed all expenses, travelling and board included, of their lecturer.

But I think that to get the greatest amount of good to bee-keeping from such an arrangement, the lectures should be quite free, and not be regarded as a source of gain to the County Associations. If you want to get a room full of people, you have only to tell them that there is something going on inside, and that there is nothing to pay for going in to see it. I once drove about fifteen miles on a winter's night in the Black Country to deliver a lecture for a lecturing Association. When I entered the room, three men were sitting over the fire, and two of them promptly decamped when they heard that a lecture was to be given, and that they were expected to listen to it. The third man was more sympathetic, and after saying that he thought it was a pity that I had come so far for nothing, volunteered to go the round of all the public-houses, and try to get up an audience; but he said there 'moant be nothing to pay.' In a quarter of an hour I had one of the largest and most appreciative audiences that it was ever my lot to address.

It would be a cruelty to send down a lecturer from London and place him in a similar position. If lectures are to do any real good in the present day, it is a *sine quâ non* that they should be free. People think that there is some *bona fides* about them, and that they are inaugurated with an honest purpose. Seats can be reserved, and admission given by tickets, but there should be no payment. When we started the Hertfordshire Association, we held free lectures in all the chief towns, and had large attendances, from which we secured many members. The next year, emboldened by success, we tried some lectures on the front-seats-one-shilling,-back-seats-sixpence principle, and the result was—empty benches. If the lectures are free, the only cause of failure must lie in a want of organization on the part of the County Secretary. Mr. Godfrey wants a lecturer to stump the chief towns in Lincolnshire. Mr. Burkitt wants the same for Wiltshire. If the willingness of the Committee is only expressed, I have no fear that there will be any want of applications.

It has been suggested by Mr. Dunman, Dorset, that the British Association could further assist the Counties if they sent a member of their Committee to visit the annual show of each County Association, with a view of reporting to the central authorities upon all that he sees, and making suggestions, if he observes anything requiring alteration. He thinks that, on the one hand, the members of County Associations would see that there was a Central Society, and that the British might enlist many members by appearing at such shows. This suggestion

is certainly deserving of consideration, but more difficult to carry out in practice.

At the meeting held in this room on 12th February, 1879, I find from the minutes that I indulged in a prophecy: I expressed my belief that in ten years from that date there would scarcely be a county in England without its Bee-keepers' Association. I am reminded that in the year 1846, when the corn-laws were repealed, the late Sir Robert Peel expressed his belief that in ten years' time all civilised countries would accept the doctrines of free trade, and impose no duty upon English produce. I regret very much that his prophecy has not met with fulfilment, seeing that not one single nation has followed the example of England as yet, and it makes me rather tremble for the result of my own prediction. I trust, however, that the historical coincidence will be confined to the prediction, and be disconnected from their fulfilment. If foreign nations continue to be stern Protectionists, the counties of England have not equally set their face against the formation of Bee-keepers' Associations. Out of the forty counties of England (omitting Wales for the present) thirteen have now Associations, and there are eight years in which the the other twenty-seven counties may provide themselves with them, so that my prophecy cannot be said to have been too sanguine yet. What may not be done in eight years if we all work harmoniously together? And we do work harmoniously together. There is not a single letter which I have received from a county Secretary which does not testify to his appreciation of what has been done by the British Association, and to his desire to preserve the connexion with it unbroken. As we often see in the Queen's speech, 'Our relations with the other powers are of the most friendly and satisfactory character.' One letter, in particular, has the impress of kindly feeling and brotherhood about it, and I hope that I may be pardoned if, notwithstanding the length of this paper, I quote the latter portion of it. I must preface the quotation by saying that there was an unfortunate delay in sending the Bee Tent from South Kensington to the show of a County Association; that it arrived, in fact, too late for the show, and that the County Committee were put to much loss and inconvenience thereby. The Committee of the British Association offered, of course, to make any compensation to the Committee of the County Association, but this was declined. 'Our committee,' writes my correspondent, 'took into consideration the proposal made by your Association to compensate us for the loss which resulted, and unanimously agreed that no claim should be made; and this on the ground that the incident, though unfortunate, was in the nature of an accident, and that the occasion furnishes an opportunity of testifying to the cordial, sympathetic feeling which animates the respective Associations.'

As long as such a feeling as this prevails, I have no fear for the fulfilment of my prophecy. With so many good men working, as County Secretaries, so zealously in different parts of England, I feel confident that before ten years have expired, every county will have its Association; that bee-keeping will rank as one of the most prosperous industries of this country, and that our confederation will reach a pitch of greatness which those, to whom its origin is due, never, perhaps, ventured to hope for or expect.

[The discussion on the foregoing paper is reserved to our next issue.]

PROPOSED BEE-KEEPERS' ASSOCIATION FOR CAMBRIDGESHIRE.

May I, through the medium of the *Bee Journal*, ask any bee-keepers in Cambridgeshire who are willing to join in forming a County Bee-keepers' Association to send me their names and addresses?—HERBERT R. PEEL, Abbott's Hill, Hemel Hempsted, Herts.

ADVERTISEMENT.

MODERN BEE-KEEPING. Arrangements are now in progress for the publication of the third edition of this work early in November; to consist of not less than 7000 copies. Persons desirous of advertising in the same are requested to communicate with the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts.

BRITISH BEE-KEEPERS' ASSOCIATION.

DAIRY SHOW.

An Exhibition of bees, hives, and honey, was held in connexion with the Annual Dairy Show, at the Agricultural Hall, Islington, on September 15th, 16th, 17th, 19th, 20th. In the classes for hives there was a good display and a healthy competition. Compared with the previous year, there appeared to be lack of interest in the honey classes, but the honey displayed was of a very superior kind, well staged and bottled, and looked exceedingly tempting. The judges were the Rev. G. Raynor, Messrs. W. Freeman, and J. M. Hooker. The stewards of the bee department were, the Revs. H. R. Peel and E. Bartrum, and Mr. T. W. Cowan.

The following were the awards:—

HIVES.—For the best Observatory hive, stocked with bees and their queen; the bees to be in confinement: second prize, bronze medal, Neighbour and Sons; third prize, certificate, C. N. Abbott. For the best Frame hive of a substantial character for general use in an apiary, price not to exceed 15*s.*: first prize, silver medal, A. Blake; second prize, bronze medal, J. Lee; third prize, certificate, Green & Sons; highly commended, C. N. Abbott; commended, C. N. Abbott. For the most economical (best and cheapest) hive, on the moveable comb principle, for cottagers' use, with arrangements for summer and winter, price not to exceed 10*s.* 6*d.*: first prize, silver medal, A. Blake; second prize, bronze medal, J. Lee; third prize, certificate, Green & Sons; Highly commended, C. N. Abbott.

HONEY.—For the best 24 sections of comb honey, each section not more than 3 lbs. in weight: first prize, 40*s.*, J. Walton; third prize, 10*s.*, W. Hunt. For the best 24 sections of comb honey, each section of not more than 1½ lbs. in weight: first prize, 20*s.*, J. M. Hooker; second prize, 15*s.*, J. Walton; third prize, 7*s.* 6*d.*, W. Hunt. For the best exhibition of comb honey in one or more supers, of any material, sectional supers excluded: first prize, 20*s.*, F. Cheshire; second prize, 15*s.*, H. Heath. For the largest and best exhibition of run or extracted honey, in 24 reputed 2 lbs. glass jars: first prize, 20*s.*, H. Hart; second prize, 12*s.* 6*d.*, J. Walton. For the best exhibition of run or extracted honey, in 24 reputed 1 lb. jars: first prize, 20*s.*, J. M. Hooker: second prize, 12*s.* 6*d.*, J. Walton; third prize, 7*s.* 6*d.*, W. Hunt; fourth prize, 5*s.*, H. Hart.

BEES-WAX.—For the finest sample of pure bees-wax, not less than 6 lbs. in weight, obtained from combs made by the exhibitor's own bees: first prize, 10*s.*, C. N. Abbott.

CYPRIAN AND SYRIAN BEES.

Mr. T. B. Blow, of Welwyn, Herts, expert of the Hertfordshire Bee-keepers' Association, intends to visit the East with the object of importing bees of the various Eastern countries. In this Mr. Blow is animated with a patriotic feeling, as he thinks it is not desirable that English bee-keepers should be behind their American cousins. For some time past large consignments of Eastern bees have been forwarded to America; and it is said they are much appreciated both for their working powers and their greater prolificness. Mr. Blow hopes to be able to bring over a large number of stocks from Albania, Dalmatia, Smyrna, Cyprus, and Syria, and expects to start very shortly.

NEWTONWARDS HORTICULTURAL SHOW.

This society offered prizes for honey in three classes, which brought out some good examples of honey from local bee-keepers, and although the competitors were not numerous the exhibits were most creditable, and speak loud for the future. John Miller, Esq., J.P. Comber, was the largest exhibitor, and showed some beautiful sections, staged to great advantage, being placed in glass cases about 2½ inches broad, and high enough to hold a pyramid of sections: six in the bottom and ending with one on top which made a good show out of little. He showed two of these cases, and also some superb run honey, for which he gained three first prizes. C. C. Russel, Esq., and Mr. Ditty came second with beautiful run honey in 2-lb. glass jars such as are recommended in the *Bee Journal*. Mr. Love also took a second with some really nice white comb he raised in a combination with queen excluder; but the sealing was very incomplete, and the comb on the whole, was very 'holey.'

The tent of the Armagh Bee-keepers' Association was on the grounds during the day, and was visited by a good many wishing to see the 'wonders of the bee-hive;' but they were more or less disappointed with the exhibition, not that Rev. Mr. Lett and Mr. Green were unequal to the occasion; but they were short of material, having only one straw skep of bees to perform upon, and so had to drive them at all the several performances, and sometimes failed to find the queen.

John Miller, Esq., J. P. exhibited a frame of Anglo-Italian bees with queen, which were much admired, and elicited a great deal of attention, no doubt; but the visit of Messrs. Abbott and Carr last year has created a great stir, and is doing much good amongst bee-keepers, and many are now commencing to keep bees that never before thought of such a thing.—CORRESPONDENT.

THE IRISH BEE-KEEPERS' ASSOCIATION.

This association held its first bee-show in the Gardens, Salthill, co. Dublin, on October 10th and 11th, and the result was an 'enormous' success, the tent being crowded with visitors on both days. The Rev. J. M. Aldridge, the Rector of Eyrecourt, co. Galway, assisted by Brother Joseph, lectured and operated on and amongst the bees to the intense astonishment of the audiences, and fairly electrified them by his easy manipulations. The Dublin newspapers are 'full' of the event, and by leading articles, and long and glowing descriptions of the wonderful things done at the show, are doing their best to induce a larger interest in the great work by pressing upon the public the necessity for supporting the Association that has made such excellent progress in so short a time.

The *Freeman* says, 'Public attention has been recently directed to the subject of bee-keeping as a profitable enterprise well suited to this country (Ireland), and the idea has been taken up with an earnestness which augurs well for its realisation. An association has been established, which we have no hesitation in recommending to the approval and support of the public. Its objects are, primarily, humanity to the most industrious and most wonderful of all insects, and also the promotion of industry well adapted to the circumstances of the country. All classes are bound to promote the objects of the Irish Bee-keepers' Association, which are the encouragement, advancement, and improvement of bee-culture in Ireland, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes.' The *Irish Times* and the *Express* have elaborate descriptions of the lecture, the former concluding, 'To do anything like justice to the lecture of yesterday, and to the demonstrations introduced, would require much space indeed; but those who wish to be shown how wonderfully God moves, even in His minor works, will do well to hear the Rev. Mr. Aldridge on bee-culture.'

Notwithstanding the general lament that the weather in Ireland has been bad, and little honey forthcoming, Brother Joseph, whom the *Express* well describes as one of the cleverest bee-masters in Ireland, took 180 lbs. of honey from one hive in five weeks, leaving 30 lbs. for the winter store of the bees; and this, we take it, is one of the best arguments in favour of improved bee-culture, and should induce the earnest co-operation and support by all classes, of the associations, not only in Ireland, but all over the world, that have been formed to promote it.

WILTSHIRE BEE-KEEPERS' ASSOCIATION.

At the Swindon and North Wilts Agricultural Society's show at Calne, September 20th and 21st, 1881, an exhibition of bees, hives, honey, &c., by the Wilts Bee-keepers' Association was held, at which prizes as under were given. A bee-tent was erected, in which all operations were witnessed in safety. An expert from the British Bee-keepers' Association attended, and gave practical illustrations and explanations of the manner of driving bees, transferring bees from straw skeps to bar-frame hives, extracting honey without killing the bees or injuring the combs. Live bees working in glass observatory hives were also exhibited.

The following is the award of prizes, which were open to all:—Class 1—For the best observatory hive, stocked with bees: 1st, Mr. A. Adams, Melksham, *7s. 6d.*; 2nd, Rev. E. Davenport, Hungerford, *5s.* Class 2—For a moveable-comb hive complete: 1st, Rev. W. E. Burkitt (3rd, South Kensington; 2nd, Marlborough), *7s. 6d.*; 2nd, Mr. J. E. Wilshire, Semington, *5s.* Class 3—Ditto for cottagers' use, price not to exceed *7s.*—1st, Mr. J. E. Wilshire, *5s.*; 2nd, Rev. W. E. Burkitt (also 2nd at Hungerford and 2nd at Marlborough), *2s. 6d.*; 3rd, Mr. A. Adams, Certificate. Class 4—For the best single super, of glass, wood, or straw—1st, Rev. W. E. Burkitt, *5s.*; 2nd, Mr. R. Manfield, Melksham, *2s. 6d.*; 3rd, Mr. S. W. Bailey, Semington, Certificate. Class 5—For the best 12 lbs., in either 1-lb. or 2-lb. sections: 1st, Mr. R. Manfield, *5s.*; 2nd, Rev. J. H. Dixon, Linkenholt, *2s. 6d.*; 3rd, Rev. W. E. Burkitt, Certificate. Class 6—For the best run or extracted honey, in glass jars or bottles, not less than 6 lbs. in all: 1st, Miss E. Preston, Marlborough, *5s.*; 2nd, Rev. W. E. Burkitt, *2s. 6d.*; 3rd, Mr. R. Manfield, Certificate. Class 7—For articles of general use in the apiary: 1st, Rev. W. E. Burkitt (50 articles), *7s. 6d.*; 2nd, Rev. J. H. Dixon, *5s.* Class 7A—For 3 lbs. best bees-wax: 1st, Rev. J. H. Dixon, *5s.*; 2nd, Mr. R. Manfield, *2s. 6d.*; 3rd, Rev. W. E. Burkitt, Certificate.

Cottagers only; no entrance-fee. Class 8—For the best made flat-topped skep, with feeding hole, super, floor-board and cover, complete: 1st, George White, Shalbourn (1st at Hungerford and 1st at Marlborough), *5s.* Class 9—For the best bar-frame hive: no entry. Class 10—For the best super of honey: no entry. Class 11—For the best run or extracted honey, in glass jars, not less than 6 lbs. in all: 1st, James Giles, Battermere, *2s.* Class 12—For the best wasps' nest: no entry.

Class 13—For the best last year's stock of bees in skep or bar-framed hive: 1st, Rev. E. Davenport, *7s. 6d.*; 2nd, Rev. W. E. Burkitt.

The Judges were Messrs. C. A. Houghton, George Childe, and W. E. Burkitt, Hon. Sec.

GRANTHAM HONEY FAIR.

The honey fair in connexion with the Lincolnshire Bee-keepers' Association was held in the Westgate Exchange on Saturday, Sept. 24, and largely patronised from the opening to the close. The fair opened at twelve o'clock prompt, and was soon the scene of life and business, and from the onset it was evident that a great sale would be the result. A grand lot of honey, both in

the comb and extracted, was offered, some magnificent supers from the Uffington apiary being the centre of admiration. A number of splendid sectional supers from the Horsham apiary were quickly cleared, also a lot from the Belvoir and Weston apiaries. The really fine lots of extracted honey offered in such nice, neat, saleable form could not fail to attract, and few could resist the temptation to purchase, and large sales were effected, and good prices realised. With the exception of a few massive supers and one or two small lots, it may be said to have been a clear-out. The hard-working committee may congratulate themselves on these satisfactory results, which must be most encouraging to them in their labours. The Lincolnshire Bee-keepers' Association is the only association in England that ventures on such a bold stroke as the holding of a honey fair proper; and it may not be assuming too much if we predict that ere long the supporters of similar institutions will follow the example thus set them, and that we shall witness the chief centres of England holding their annual honey fairs or auctions, and the people able to lay in a store of pure good honey. One most important fact we cannot help mentioning, and this is the thorough desire of the committee of the Lincolnshire Bee-keepers' Association to carry out what is set forth in the rules of the Association, and more particularly in Rule 9, which says the committee shall endeavour to carry out the objects by certain specified methods, including 'the most profitable disposal of bee produce.' Thus, at the Grantham honey fair members of the Association had the opportunity of disposing of any surplus honey at a good price, free of commission, and those members who were slow to avail themselves of the privilege have only themselves to blame if they have honey on hand. Nearly three-quarters of a ton of honey was on sale, the average price being 11*d.* per lb. for extracted, and 15*d.* for comb. Owing to the great failure of the honey harvest in Scotland this year, our English bee-keepers have had a grand opportunity of selling to good advantage. Surely, with so many benefits offered by our County Association, a growing increase of members should follow. The whole arrangements for the fair were (under the direction of the hon. secretary) ably carried out by Mr. Bolton, Mr. Brett, Mr. Eaton, Mr. Howright, Mr. Parnes, and other members of the committee.—*Grantham Journal.*

CALEDONIAN APIARIAN ASSOCIATION.

Minutes of closing meeting of session 1881 of the Caledonian Apiarian Society was held in M'Inres' Temperance Hotel, Glasgow, on Wednesday, 19th October. Present: Rev. John Irving, Innellan; Bailie Lauchland, Kilmarnock; W. W. Young, Perth; J. Johnson, J. Muirhead, Stirling; Wm. Sword, Falkirk; David Woods, Benmore; J. D. Hutchinson and R. J. Bennett, Glasgow. The Secretary read the circular calling the meeting, and, on the motion of the Rev. Mr. Irving, Bailie Lauchland was called to the chair; after which the minutes of last meeting were read and confirmed; and letters of apology from Mr. J. Anderson and others. The financial statement was then given, showing that the Stirling Show had given a clear gain to the Society of 16*l.* 8*s.* Mr. Bennett remarked that one reason of the success at Stirling, even in such a very bad year, was the willingness of the members in lending every aid in their power to make the show a success; special thanks being due to Mr. Johnstone, of Touch, an able bee-keeper and a most willing worker. The medals and prize-money were distributed to the successful competitors. There was a discussion with regard to Affiliated Societies, and the Rev. Mr. Irving said that the rules were quite complete as regards the finance. 1*s.* for every member, till twenty, and 5*s.* for every additional twenty members, or part thereof; but in addition for the year 1882, they should have the use of the Bee Tent, by paying the cost of carriage and any damage that it might sustain. Mr. Bennett said a plan of the tent, and instructions how to erect it, should be sent with it, so that there could be no difficulty in the matter. Mr. Raitt's letter was again brought up, as to having one society for all Scotland; but, after discussion, the Secretary was instructed to refer him to the rules for affiliation, as all that could be entertained meantime. The Secretary laid on the table a pile of correspondence, and complained of the many frivolous pretexts upon which the members and non-members wrote to him, all of which demanded a reply. On the motion of Mr. Wood, seconded by Rev. Mr. Irving, it was resolved that the society express its strong disapprobation of such correspondence, and desires to remind members that Mr. Bennett has given his services gratuitously for the last seven years to the society for love to the favourites the bees, and to see and improve the cottagers of the country, and, therefore, the members should be careful not to make his duties too irksome by giving him unnecessary trouble. On the motion of Mr. Young a vote of thanks was given to Bailie Lauchland for presiding, and the meeting terminated.

Correspondence.

THE PROMOTION OF COTTAGE APIARIES.—VALUABLE PRIZES OFFERED.

On my return to England, after an absence of nearly three years, I observe with pleasure the advance which has been made in the science and practice of bee-keeping. Great improvements apparently have been effected in the construction of hives, sections, and other apparatus. The use of comb-foundation has greatly increased the productive capabilities of the apiary. The practice of improved systems of bee-keeping has been encouraged, far and wide throughout the country, by the establishment of local associations.

In one particular direction, however, it seems that little advance has been made. There is a want of carefully ascertained and properly authenticated information as to the cost and profit of bee-keeping generally, and also comparatively between the various systems now used. This scantiness of information must hinder, to a great extent, the adoption of improved systems by the Cottager class. The poor man must be convinced that it will pay before he will be persuaded to make even the most economically planned outlay which any modern system involves. He looks with suspicion upon all the costly apparatus with which the apiaries of most of our scientific bee-keepers are stocked at the present day. He knows that he cannot afford to invest as much himself, and for whatever capital he is invited to embark, he wants to be assured that he will receive a proportional return. The truth is that the question of profit does not really enter into the calculations of a large proportion of our amateur bee-keepers. Most of them accept bee-keeping as an amusement, and if needs be are willing to pay a little for it, or at all events are quite content if all expenses are cleared. Many bee-keepers are extravagant, and even where they are not, a great deal of money must necessarily be spent by those who test the inventions of others, or work out their own. There are a few

who keep bees for profit whose commercial success is apparent to their neighbours; but these very often do a great deal of business in the sale of swarms, and in the supply of hives and bee-keepers' requisites. It would be difficult, therefore, to ascertain how much of their profit is due to the sale of the staple product of an apiary,—the honey. Hence there is a lack of that sort of information which would be most likely to induce the poor man to become a bee-keeper after the improved systems of the present day. Knowing as we do what poor men might do with bees, many of us, I am sure, regret that the number of cottagers' apiaries is not very largely increased. 13*l.* a-year is not an extravagant estimate of the sum which a poor man might clear by his bees. A regular 5*s.* per week might be thus added to the incomes of thousands and tens of thousands of the cottager class.

The remedy which suggests itself to my mind is that, if possible, the leading bee-keepers of the present day should be induced to keep in their apiaries a separate economic department. That some system should be established by which the cost and profit of bee-keeping would be ascertained, and the results made known to the public.

As a definite proposal is more to the purpose than a mere suggestion, I beg leave to offer to the Committee of the British Bee-keepers' Association 10*l.*, to be awarded in prizes according to a scheme of which the following should be the main features:—

(1.) That competition shall be open to any person residing in Great Britain, and to any system or combination of systems.

(2.) That prizes of 6*l.*, 3*l.*, and 1*l.*, be given to the competitors whose 'Poor man's separate economic department' shall be judged (respectively 1st, 2nd, and 3rd) to have been the best managed, most efficient and profitable during the period of competition (say from March 1st, 1882, to September 30th, 1883.)

(3.) That accurate accounts be kept from the date of entry to the time of judging. These accounts are to be open to the Committee of the British Bee-keepers' Association or their agent at any time, and they are to be delivered, signed as correct, to the judges with any remarks that the exhibitor may please to add. The accounts to be published in the *British Bee Journal* after the award of prizes, and also, if thought desirable, at the close of the first season of the competition.

(4.) That the apiary of each exhibitor be visited during the summer of 1883 by an expert appointed by the British Bee-keepers' Association Committee, who shall make a full report in writing to the judges. His travelling expenses to be divided among the competitors.

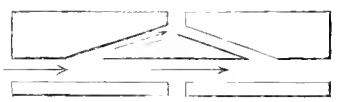
(5.) That the judges take into account the results as shown by the balance-sheet, and also the report of the expert.

I cannot but think that such a competition, as this which I have attempted to sketch out, might do much to promote the increase of apiculture. Not only should we have definite information to give to our inquiring poorer neighbours, but there would be an opportunity of applying a crucial test to the comparative merits of the various systems of bee-keeping. The most approved frame-hives would probably be brought into competition with the storied Stewarton, or the less costly skep. The various methods of gathering the honey harvest would be tested. We should learn whether extracted honey or sections paid the best. Many a wrinkle would probably be gained from the statistics which such a competition would afford.

In conclusion, I would only express my regret that the sum offered for prizes seems insufficient to ensure a large competition, and I cordially invite any brother bee-keepers to join with me so as to increase the amount offered in prizes, and make it sufficient to repay the trouble which the competition would entail. I would further suggest that special efforts should be made to induce as many as possible of our most reliable authorities on bee-keeping to join in the competition; and if possible that it should, annually or biennially, form a part of the British Bee-keepers' Association's prize programme.—HENRY BLIGH, *The Vicarage, New Hampton, Oct.* 1881.

PREVENTING WINTER DRAUGHTS.

I am every day more pleased with my draught-preventer. I find it answers best with the triangular passages for the outer entrance, as the draught is then more easily carried along the groove to either end; and with a side wind, when attached to the outside of a hive, what portion of the draught that does not drive right through the groove will pass out at one of the front entrances, as represented thus:—



Whereas, were the apparatus turned with the double entrance inwards, some portion of a side draught would go into the hive. When used inside an outer case, it does not matter so much which way the apparatus is placed so that it is set close to the floor-board and tight between the hive and outside wall. I am making them a little wider now so as to give a single flight-hole opposite the point of the triangle, as represented above.

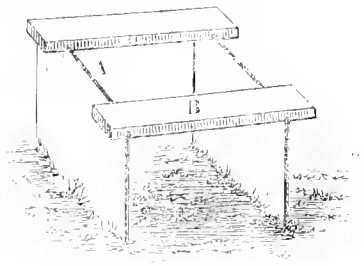
As an instance of its efficiency, a strong colony confined to seven combs stood facing the bleak north-east wind we have lately experienced. It had a space of $\frac{1}{4}$ inch under the back division-board, and when I lifted the carpet covering the vacant space at the rear, the draught (coming right through the hive) drove up with such force as to make it quite uncomfortable to myself; but after I put a preventer at the front, there was not enough to move a hair. I often noticed last spring, on removing the cushions from hives in my bee-house, that the ticking covering the frames rose and fell as the wind blew, although the entrances were only one inch wide at the time.

Speaking of bee-houses reminds me that you do not advocate their use, but mine has proved a great success, and I wish all my hives were

arranged in such. I can manipulate in all weathers, and with a high wind there is no danger of the quilts blowing about, or brood getting chilled.—SAML. SIMMINS, *Oct. 12th*, 1881.

HIVE STANDS.

Herewith I send you sketch of a stand which some of your readers may think worth a trial. Five, that were fixed about a month since, stood the gale of the 11th inst. without the slightest mishap. The slates may be fixed nearly, or quite, half their depth in the ground. The distance of the slates apart, and the length of the pieces of wood on top, to be regulated by the size of hive



A.—Roofing slates fixed in the ground.
B.—Pieces of wood, 3 inches wide and 1 inch thick.

intended to be used. If saw-cuts are made about ¼ inch deep, on the under sides of the two pieces of wood, where they meet the edges of the slates, it will keep them in their places, and the stand is complete as per sketch. Two more pieces of wood fixed each side of the hive, and fastened to the pieces resting on the slates, form an improvement preventing the hive shifting on its stand.

The advantages claimed for this stand are simplicity in its formation, cheapness and durability, is vermin proof (so far as its height will allow), and encumbers very little ground.

Might not the space between the slates be utilised for plants requiring a little shelter during winter? Mine are fixed with the spaces looking north and south. Why not fix pieces of glass at the ends for further protection?—I purpose giving it a trial.

I must not omit to mention that I place a piece of slate or tile, flat under the edge of each slate, in the ground to prevent the possibility of the slates sinking.—J. R. W. HOLE, *Stoke Edith, Herefordshire.*

WHITE SAGE FROM CALIFORNIA.

I beg to enclose sample of our white sage seed; this produces our fine white honey, coming into bloom about the 1st of June. It lasts about six weeks; it is bi-annual; it grows mostly on light, sandy soil; its bloom is luxurious, its stem being from six to ten feet in length. If you can find time to sow, or think it worth while, I should like to hear of your success per *British Bee Journal*. I feel a great interest in your apicultural labours. I have two apiaries; in all about 100 colonies. Our crop this year is nearly a failure. I take a great interest in all your concerns, and hope that the dear old land may not be behind their favoured brethren in the Far West.

If I was within reach of London I should have a trial of some of your things now in use. I wish I could send you a sample of our white sage honey, but it is not moveable.—R. STRATHEARN, *Santa Paula, Ventura co., California, Sept. 10th*, 1881.

P.S.—I should have liked one of your 'spray diffusers;' is there anything I can send for it?—R. S.

[We have sent a spray diffuser by sample packet post, and hope it will arrive safely; the seed sent is full payment, only our esteemed friend forgot to say when it should be sown.—ED.]

NEW ZEALAND FLAX.

Having received the July number of the *British Bee Journal*, I see you would like a few seeds of the New Zealand flax to try. I herewith send you a packet hoping it will arrive safely. From my experience, I don't think much of it, as the honey, or rather sweet water, which comes from it is of a pungent flavour, and its being so watery is apt to give the bees dysentery. It is certainly a wonderful plant, as it produces a great quantity of this honey-water, but to rely on it for good honey would not do at all. It likes a marshy soil, as it takes up a great quantity of water.

The white clover, as at home, is the great honey-producer. It continues in flower about two months. Next comes the pohutakawa and mastree, which grows as large as the evergreen oak, and is very much like it in appearance. There are also a great many forest trees which flower, and are honey-producers. The ti tree is a flowering shrub, which the bees are very fond of, and as it is a spring flowerer, it does a great deal of good. It is very pretty, and would look quite nice in any garden; but here it is thought nothing of because one finds it everywhere. When in flower, it looks as if it were covered with snow: the blossoms are so thick.

I hope you are all well at Southall, and that you are still prospering in your undertaking of teaching the public. Please remember me to all friends, and with all good wishes for your future success, believe me, FRANK C. PARISH, *Dublin Street, Ponsonby, Auckland, Sept. 8, 1881.*

VINEGAR FOR STINGS.

I think it may be useful to your readers to know that vinegar, 'as a cure for bee-stings,' is successful if people will only give it a fair trial. Your correspondent, 'M. W.' questions this; but, if instead of first applying sweet oil, he (or she) had applied vinegar, it would have had a fair chance, and I have no doubt, the result would have been different. I have used it for years, to young and old, under all circumstances, and the universal testimony is, that it gives relief from pain almost immediately, and no swelling results afterwards. I have had an old man stung in three and four places at once, on the cheek, eyelids, and eyebrows, and yet, after the application of vinegar, the pain was removed, and scarcely any swelling followed, even when there were two stings

extracted from one eyelid. I might multiply cases, but one more shall suffice. I was driving a hive of bees the other night in the house, and my son inadvertently putting his hand upon a bee got stung. I extracted the sting, and he rubbed the place with vinegar, and was surprised at the effect, and had no pain or swelling afterwards. I recommend vinegar because it is in common use, and always handy, and, is indeed, in all cases that have come under my notice a true and simple remedy.—J. R. J.

A FRENCH CURE FOR BEE STINGS.

The following statement has lately appeared in a French medical journal:—'A dog was severely stung on the nose by bees, and his master watched to see what he would do. The animal went straight to a bed of leeks, and rubbed his nose violently among them, and the result was a complete cure, without any swelling or inflammation.'

The remedy has since been tried on human beings with complete success, and as leeks can be grown in every cottage garden, it is within the reach of all.—A Hampshire Lady.

CURE FOR STINGS.

I have found the following plan to answer most satisfactorily,—First, find the place, which is generally pretty easy to do, pull out the sting at once (killing the bee, not out of revenge, but mercy, to save a lingering death), then, with a barrel-key or level-cut quill, or anything with a small hollow end, press for a few seconds on the stung part: this forces out the poison, which is quite visible; wiping it off, apply strong spirits of hartshorn, and in most cases no evil results will follow.

As regards gloves while manipulating, like my neighbour Mr. Adams, I use none, having been told by that gentleman that 'the more you get stung the less you feel it,' which I have found to be correct; so that, while at first my hands would swell sadly when the above remedy was not at hand; now I never apply anything when stung, the pain is of very short duration, and the swelling almost *nil*. As regards bee-veils, I do not like Dr. Pine's, the wire shines too much by sunshine or candle-light.—J. B.

STINGLESS BEES.

That a variety of stingless bees does exist we may see from the following extract from the Journal of Mr. D'Albertis, the Italian traveller. From his account of it, it does not appear to be of much value, as, although the honey is prized by the natives, the taste and smell were very offensive to him.—J. W. Measures, *Long Sutton*.

He speaks of it thus:—'Since leaving the reed-fringed banks we have been no longer annoyed at night by gnats. But if we anchor near the shore during the day, we are attacked by a bee, which is quite as vicious. It is small, black, and voracious. There is nothing on board, hard, dry, soft, or liquid, which it spares. Meat, biscuits, fruit: nothing comes amiss to this tormenting insect. It has no sting, and therefore causes no pain; but it is noxious in other ways, for it settles on the hands, on the face, in the eyes, in the ears, in the beard, and in the hair. If one attempts to remove it with one's fingers, it leaves a most unpleasant odour. It comes on board when the sun has hardly risen, and only leaves us at sunset. To get rid of it is impossible; it exists in such numbers that though we kill thousands, there is no apparent diminution. On land it lives in old trees, and produces a blackish honey, and wax of a red colour, which is used by the natives in various ways.'—D'Albertis' *New Guinea*.

STINGLESS BEES.

If there exist a race of good honey-gathering bees without stings or other equally hurtful weapons, is it at all probable that they could be still amongst the things undiscovered? However, for C. Feilding's information I send the inclosed clipping from the *Gentleman's Magazine* for June 1758, perhaps some of your subscribers may have correspondents in Essequibo, S. America, who might inquire into the matter.—S. Ormsby, *Kilkeel, co. Down, Ireland*.

'The bees that are most common here are black, as is also their wax, nor are they furnished with stings. The fish are taken in the rivulets or creeks, by mixing the juices of certain herbs or roots with the waters, and thereby depriving them of their sensibility for a certain time, without rendering them at all less fit for food.'

STING POISON.

One of your correspondents some time ago stated that bee-poison is not acid. I to-day amused myself by collecting some of their poison on blue litmus paper, which at once showed its extreme acidity beyond doubt.—W. Bassano, *Haden Cross, Old Hill, Sept. 30*.

PROLIFICNESS OF SYRIAN BEES.—THE SEASON AT ULVERSTON.

The Syrian queen I had from you threw off five swarms in June, and the first swarm threw a virgin on the 18th July, and a second on the 30th. The queens of the old stocks got purely mated; also one other; the remainder all met with black drones, and the bees are not marked at all. We had rain almost every day in June, July, and first three weeks in August. The last week was very fine, also nearly the whole of September.

It certainly has been the worst year for honey on record. I have had only seven swarms from my eighteen Standard stocks this season. I have boiled 18 stones of sugar, this autumn, to keep them alive over the winter. I had a few sections filled in May, otherwise there would have been none.—W. Butler, *18th October, Ulverston*.

OBSERVATORY HIVES.

Would you be good enough, in your next issue of the *Journal*, to give a few hints on the making of an Observatory hive? If the letter-press were accompanied by illustrations, such as you favour

us with, it would be doubly useful, and easy for an amateur to work to.—MERCI, *Derby, Oct. 21st*, 1881.

[We shall be glad to give ample directions for the manufacture of an Observatory hive if our correspondent will indicate the kind required. Is it to be for exhibition purposes, or for quiet study at home, in the garden, or in the house? a single-framed unicomb, or with several frames in the same plane, or with several frames, side by side, as in an ordinary hive? If for exhibition purposes the features required should be named, *i.e.*, whether facilities for seeing the bees, is to take precedence of a hive to receive ordinary frames. In many prize schedules prizes have been offered for the Observatory that shall give the most complete view of the bees and their queen, but generally the awards have been given to the Observatory containing the largest number of bees without regard to the terms of the competition in respect of the hive. We mention this because a hive can be made (has been made and exhibited) in which it is not possible for a single bee to hide, except in the entrance way. When full of bees it takes first prize, but when only partly occupied it is 'nowhere,' though the conditions, as to the hive, remain the same. There is, however, the drawback to its general use, that its frames are specialities, and not interchangeable with others in ordinary hives. This, too, raises another point, viz., what kind and size of frame shall the proposed hive be made to contain?—ED.]

ABBOTT'S ROBBER TRAP.

I think you may like to know that I have found your 'Robber Trap,' as described in the August number of the *British Bee Journal*, a great success. The three hives (2 inch) in which I placed six lots of cottagers' condemned bees, were furiously attacked by my old stocks, and I was told that the feeding occasioned this. I tried only putting on the bottles at night, but still the fighting continued; I was then advised to try Mr. Cheshire's porches, and they certainly had some effect, but one hive was still beset, so I then had one of your traps made, and the relief to the besieged bees was very great, and I saw them carrying in loads of pollen successfully through the holes. I then had another fitted to a hive which wasps were inclined to attack, and I am sure it is of use, though they slip in through the holes sometimes. The straight part of the trap is of plain zinc, not perforated, but I fancy there is quite ventilation enough down the perforated tube (of which the mouth is an inch wide) and through the two holes.—A HAMPSHIRE LADY.

DIVIDERS—WOOD, GLASS, OR METAL?

Can you or any of your readers inform me, from experience, what kind of divider is best for using between sections; whether thin wood, zinc, tin, or glass? I used none this year, and the result was uneven combs that would not pack. I intended using thin wood dividers, but have been informed that the bees often stick the combs to them,—is this the case? Were it not for this, I should prefer wood, as being warmer, and less likely to prevent the bees taking well to the sections. It might be worth while for your readers to compare notes by sending the results to the *Journal*.—A SUBSCRIBER, *Oct. 20th*, 1881.

[We shall be very glad to have the question reported on by those who have tried the various kinds of dividers. We say there is nothing like wood, but perhaps a currier would say, there's nothing like leather.—Ed.]

THRASHING BEES TO DEATH.—UNNEIGHBOURLY CONDUCT.

Permit me to give you a short account of the difficulties and disappointments I have experienced with Ligurian bees.

On the 15th May, 1880, I purchased a Ligurian queen, and caged her alone on a brood-comb, as directed by Messrs. Neighbour & Sons. I did not unite the bees which came with her, but, not wishing to destroy them, I shook them out on some flowering bushes at some distance from the hives, and left them to live or die. In the second week of September, after removing supers, I found, to my great disappointment, that the combs were heavily charged with foul brood. For the sake of experiment, I went to work at once, according to the directions given in a number of your *Journal*. I put the bees into an old skep, broke up and burned the combs, scraped the hive and frames free of all particles of wax and propolis, smoked with sulphur fumes, washed first with a solution of carbolic acid, then with warm water and dried. I then fixed a few pieces of clean comb and comb-foundation and replaced the bees, feeding them for a fortnight. In the following March I found the hive very weak in bees, but clean and healthy, and about the middle of July they sent off a fine swarm.

This summer in Scotland has been dull and cold, and my bees did not do well, four stocks only yielding 43 lbs. of super honey.

But to return to the Ligurians. At the end of August they were very strong, but without a sufficient store of honey for the winter. I began at once to feed them, and soon they were in a condition all that I could desire.

A friend and neighbour of mine, living within a few hundred yards, had among his sixteen hives one very weak, which had kept its drones and was either queenless or with a virgin queen: he had placed it on a feeding-board which he had allowed to overflow: he had, however, removed the feeder, and washed and cleaned all round the hive. A few days after this occurred, on Sunday the 25th Sept., a very fine and warm day, he sent me word that my Ligurians had attacked the hive in question in tremendous force. I was unable to go to him at the time, but sent him word to remove the hive to a shed or some out-of-the-way place, and use a little turpentine to keep off the bees from the next hive. He did not, however, adopt my advice, and next morning, when I was able to visit him, I beheld a sickening sight; for several yards round the ground was thickly covered with slaughtered bees, apparently all Ligurians. According to his own words, he would not 'desecrate' the Sabbath by removing the hive, as I had advised; but, leaving it as a trap to entice the invaders, he and his son had each taken a handful of twigs and lashed them for a couple of hours till all were slain! advising

me, for the good of the neighbourhood, to put away my Ligurians.

Perhaps you may kindly publish this communication and give some advice on the subject, and say whether you think I should give up the Ligurians. I am sure you will think with me that my neighbour is greatly to blame, and deserves the title of 'John the Bee-killer,' which I have bestowed upon him. It will be very long before I forget the 'Bee massacre' of Oakfield.—VALERIAN NOVITZKY.

[The 'neighbour,' in his crass ignorance, doubtless believed the robbing was the natural effect of proximity to Ligurians, and endeavoured to prevent it in the future by the stamping-out process. It is a grave pity when adjacent bee-keepers cannot be neighbourly, and worse still when one takes up a line of conduct that might provoke reprisals. The cause of the robbing was the spilling of the syrup, which would, at this season, induce bees of any race to try to obtain a share, and the bee-killers have shown most pitiable stupidity all round.—ED.]

THE HONEY HARVEST IN THE NORTH OF SCOTLAND.

Last month I promised to give you my results, and here they are—viz., best hive, 4*l.* 5*s.* 5*d.*; worst hive, a good swarm and 13*s.* worth of surplus honey from old hive. Before I began to read the *British Bee Journal* we counted thus—'one top swarm, 70 lbs.; one second swarm, 40 lbs.; old stock, 60 lbs.; run-honey from old hive and top swarm, 56 lbs.—sold at 7*d.* per lb., total, 1*l.* 12*s.* 8*d.*' Matters, however, have begun to mend: the quantity of honey required to fill a hive with comb is now much better understood.

To make a long story short, let me say that I am well pleased with the season's work, and many others hold the same idea. On the 30th September and 1st October I had the pleasure of seeing a good many bee-keepers and their results. I will give you just one specimen, which will illustrate more than a dozen others. At Delrachie, Inveravon (Mr. John Grant's), a ten bar-frame hive was introduced. Very few—indeed I don't think any one in the immediate district—had ever seen a hive with frames, and fewer still would believe that bees would stay and work in it. 'John,' however, got a hive and some copies of the *Bee Journal*: directions were also given how to hive the bees, &c., &c. At last a swarm was obtained, and safely put into the 'timmer skep,' when lo, and behold! they began to work! A number of home-made supers were placed on the top of the frames—I should rather say on the quilt; the latter was not removed, only a 'slit' cut across. The only protection the supers had (except the roof) was a bit of newspaper. Well, what was the result? 18 lbs. of splendid super honey, three frames about 14 lbs.; left plenty of honey for bees, indeed another frame might have been taken.

In the same district I found that several hives had perished during summer. Now I would ask, if a beginner can produce the quantity of honey mentioned above, what would have been the results in the hands of an expert? What is wanted to make the district one of the best in the north of Scotland is just the *British Bee Journal* in the hands of every bee-keeper, and I have no doubt that will take place next.

On the evening of 30th September I gave a lecture to a private company of bee-keepers, at Castleton, of Inveravon, and illustrated my subject with the Diagrams published by the British Bee-keepers' Association. Several parties had to walk home six miles after twelve o'clock midnight. By this you will see there was some interest created in the district.—A. COCKBURN, *Honey Grove, Cairnie-by-Keith, N.B.*

BEES AS RETRIEVERS OF HONEY.

I send you the following particulars of a somewhat disagreeable incident which happened to me lately, and which may prove a serviceable caution to some of your readers:—On the evening of the 13th inst., I took six bars from an Italian bar-frame hive, which consisted of eighteen bars, measuring 1 ft. 6 in. in length, and 1 ft. in depth, and I calculated that those six bars would contain at least 30 lbs. of honey, probably more. As it was getting somewhat dark by the time I had finished operations, I put the bars I had taken in a shed about fifty yards from the bees, placed them close up together and covered them with an old veil.

When I went up the next morning at 10.30 to bring it away, there was not a drop of honey in any of the combs: the bees had unsealed every cell, and the comb was perfectly dry. I have seen bees clear up honey, which has dropped about during manipulation, etc., in a very short time, but had no idea they were so expeditious about their work as they proved to be in this case. HERBERT A. KENT, 33 *New Street, Salisbury.*

A BEE-KEEPERS' ASSOCIATION WANTED AT CORK.

I have had no practical experience in bee-keeping, but I have been studying the matter for some time to try and find out the best method to begin with, so as to avoid mistakes. I have read many books, and got all the catalogues possible of bee-furniture, and naturally I am somewhat in a fog on some points. What I want to get at is a system that is moderately simple and cheap, as I should not object to make a little coin, while also having the enjoyment of looking after the bees.

I also labour under the disadvantage of knowing no bee-keepers who work on modern scientific principles. I live within seven miles of Cork, and for miles round very few keep bees at all, and those that do invariably use the old skep, and do not even make use of a super of any sort. I only know of one cottager who keeps bees, and hardly any farmers, large or small, have them: the only persons who keep them being a very small number of the country gentry, or business men close to towns, and they all use the skep. I have heard of two who use bar-frame hives. This just shows how much we want a Bee-keepers' Association in co. Cork. I would be glad to join one if started, as it would be a great help to have a show to go and see bee-furniture, &c.

The *Italian System of Bee-keeping* (Giotto Ulivi's), by A. J. Danyell, strikes me as very simple. His hives

(have they ever been tried in England?) are on the plan of 'close-ended frames' that you allude to in your remarks on 'Wintering Bees in a Half-inch Swarm-box.' It appears to have some objections, but I suppose propolisation is inseparable from any sort of close-ended frame-hive, and the difficulty would be increased if applied to the bar-framed hives in general use. It appears to have too much door room for winter and robbing. As far as I can see, the universal opinion is in favour of a much larger hive than Giotto Clivi's, which is only 9×8 in the frame; but then the size of the hive can be extended unlimitedly, so that a large hive could be had, as seems to be much desired at present by some, by increasing the number of frames instead of enlarging the frames. But of course the Italian frames could be made of any size wished for. These hives appear cheap and easily made; swarming under command; and artificial swarms easily made; and they admit of any system of bee-keeping being applied to them.

Down south here it is difficult enough to get cottagers to take to even skeps unless you give them skeps and hives as a present, let alone to get them to adopt an improved method, as what would be thought very little trouble elsewhere is considered 'too much trouble' by them here. So I would have very little hope of seeing bar-frame hives used here as they are by cottagers in England, but would be very glad to find my supposition proved erroneous.

The 'Combination hive' seems to me the best plan. By having two entrances for the bees, one at the end so as to have the frames across the door; and if you want to make the frames at right angles to the door without changing the frames, all you have got to do is to open the other door at the side, and close the one at the end. This idea struck me when reading your criticism of the 'Griffin Hive.' Has the latter hive been ever in use, for I imagine it would be hard to open up in the spring, as it would be all propolised at the close ends? Very presumptuous of a beginner to be offering opinions.—J. C. S., *Passage West, Co. Cork.*

SPARROWS AND BEES.—TWO QUEENS IN A HIVE.

I must congratulate you upon having such well-behaved 'common sparrows' in your neighbourhood. I should consider them very uncommon if they only condescended to feed their young with my drones; but the truth is they have completely paralysed several of my stocks, and all through the summer those hives without shades to the entrance have suffered greatly. During the last few weeks (since the drones have disappeared) I have been compelled to make special protectors; for the wretched things would stand upon the alighting-boards, and take the bees with impunity, and all those which dropped with heavy loads of pollen have been the first to perish.

I have at this time a stock of Ligurians with two queens in perfect harmony, one is getting old. I bought it three years ago, and deprived it of wings, the other is a fine young one. I first discovered the fact nearly three weeks ago, and have had an interview with both this day. I am wintering on three combs only (Standard size), and there is even now considerable patches of brood, the hive being, of course, crammed with bees.—T. F. Ward, *Church House, Highgate, Oct. 7, 1881.*

[It is quite evident that there are sparrow- and sparrows. Ed.]

WHICH IS THE BEST HIVE?—OPEN AND CLOSE-ENDED FRAMES.

I am glad to see that this question is being ventilated, as it is one that I have been anxiously studying theoretically, as I have had no practical experience of bee-keeping; but when I make a start next year, I want to begin with the best practical working hive. It strikes me, as far as I can judge from reading up many works on bees and catalogues of hives, that there is a general tendency to treat bees in a very artificial way, and in opposition to their natural habits. I have had a considerable experience in the keeping of dogs, poultry, pigeons, and birds, and my object (and I may add that of any fanciers that I am acquainted with) has been always to go as near to nature in their treatment as possible. Now it strikes me that bee-keepers force their bees in many cases unnecessarily, when by going closer to nature they would probably succeed better. Why compel bees to use open-ended frames, when close-ended ones are what they wish for, and, I might say, make a fight for, when those that are open-ended are forced on them? If the close-ended frames have been so very successful in Italy, why should they not be in England, especially in their improved form, as made by Messrs. Abbott? Taking the 'Griffin hive' as a sample of the open-ended frames, and its complicated method of conversion into close-ended for winter use, it appears monstrously absurd when compared to what I might designate the simplicity of an 'improved Giotto hive.'

Then I see it repeatedly stated that there is frequently considerable trouble in getting bees to go up and work in supers, and that often nothing will induce them to go up, and that various dodges have to be used to get them to go at all. If bees have such an instinctive dislike to go up into supers, why compel them? Why not let them fill section-frames in the body of the hive with the use of the queen-excluder? I imagine that a good deal of the different opinions as to so many divergent ideas on the formation of hives is that each inventor thinks his own bantling the best, and he won't recognise any improvement in other people's hives, as he did not originate it. One says, 'Use supers on top;' another says, 'Don't do anything of the sort, but use collateral hives;' another says, 'You're both wrong: the longitudinal is the best;' somebody else says, 'that all are good,' and also advises 'nadiring, perhaps;' and then the 'bee-farming' revolutionist says everybody is an ignoramus but himself. So what is a poor beginner to do? With Mr. Cowan's book as a guide, a beginner, if he has any bent for live stock pursuits especially, should get along fairly; but I think the words, 'close-ended frames,' are not even mentioned or alluded to in any way by him, and he also says nothing about the Stewarton hive, at which I felt much disappointed.

It is plain that to be successful in bee-keeping one must go in for modern and improved methods, as exemplified in Mr. Cowan's work; and as bar-frames are now to be used, the next point to be settled is whether to adopt open or close-ended. In using open-ended frames, apiarists go to a great deal of trouble preparing their hives for winter use, which, it seems plain, would be much better done by the bees themselves if given close-ended frames. As you very truly say, it appears to be 'straining at the gnat and swallowing the camel.' It looks like trying to fit round pegs into square holes.

My letter is rather long, but it is simply looking for information, and not as offering opinions, which would be rather presumptuous for a beginner.—A Cork Bee-keeper.

HONEY YIELD OF IRELAND.

Seeing in the June *Journal* that Messrs. White got in thirty tons of honey, for the season, so I made some

inquiries of them, as I did not know whether this weight was the sum total of the hives as received, or the contents as cut out, but found it was the weight of extracted (?) honey shipped by them. On reading the calculation for Ireland, based on this thirty tons in the *Journal* for July, I intended writing to you on the matter, but, somehow or other, and being busy with my own bees at the time, I forgot to do so, but was reminded by Mr. T. B. Browne (p. 124) doubting Messrs. White's statement. Messrs. White's statement I fully believe to be perfectly correct; but then they say, as quoted, 'from the country round here.' Now situated as Waterford is, 'the country round here' would embrace three counties, from which Messrs. White received honey. I, of course, don't mean to say that Messrs. White received all the honey from the three counties, but the calculation of the honey yield for Ireland, based on the thirty tons received by Messrs. White, is, irrespective of the area of the counties and bee-flora, probably much in error owing to the assumption that this thirty tons came from the county of Waterford only.* Messrs. White only received about ten tons this year, but from this it is not to be inferred that the season was a bad one, but is owing to the condition in which the hives were when the honey glut commenced. I think the system of management is most wretched; the bees are put into miserably made straw hives, which are, almost without exception, placed on rough stone flags, they hive every cast or squib till any good stock is ruined, and when the great smotheration day comes, the heaviest and youngest hives are usually selected. I have known a man winter (?) ten and thirteen stocks, and find himself with about one alive at the commencement of summer. Any stocks alive at the end of spring, instead of being strong and ready for work, merely drag out an existence.

One of the great drawbacks to straw hives, or any hive in which the combs are not moveable, is that the combs get filled up with honey, the number of eggs laid, therefore, becomes restricted, and there is no late breeding, consequently no young bees go into winter quarters; and when the spring arrives, and breeding should commence rapidly, the hive is short-handed, and the bees all old.

The person who inquires about African bees, I can't now refer to his name, will have all he requires in Ligurians, as, practically, they have no stings. I only introduced two queens this year, and, from all I see of them, they are the bees to have. I never think of smoking a hive of them before opening it, and when you lift off the quilt, instead of a set of demons dashing at you, they crouch on the combs. Not the least advantage of Ligurians is the case with which you can find the queen.—FRANCIS JONES, *Mullinabro', Waterford.*

* Messrs. White's statement, dated from the city of Waterford, was, 'We got in thirty tons of honey last season from the country round here,' and that we understand to mean round the city of Waterford, and our calculation was fairly based on the assumption that the county of Waterford produced that amount. It cannot be supposed that Messrs. White received all the honey that the county of Waterford produced, or much more from the distant surounding localities than the balance left in Waterford, which would tend to show that we were not very wide in our figures, though the estimate was only roughly formed. A wide margin was also given on the fact that we treated Waterford as one of thirty-two counties, and multiplied its 'assumed' product by that number, but, in reality, the county of Waterford contains less than a forty-fourth of the acreage of Ireland, so that, had we given Waterford credit for producing only twenty-two instead of thirty tons, the same totals would have worked out. The county of Waterford contains 461,553 acres, and twenty-two tons contain 49,280 lbs., or an average of about a ninth of a pound (or rather less than two ounces) of honey per acre.—ED.

Echoes from the Hives.

Cairnie-by-Keith.—(An echo with the right "ring" in it.—ED.) 'I shall print a new list of hives shortly, and shall give you a free advertisement. I always hold that your *Journal* must circulate by hundreds where at present only a stray copy is to be found.'—A. COCKBURN.

Wigtownshire, Whitborn district.—'It might be interesting to some of your readers to know what season we have had in this the most southern district in Scotland. We opened with a very backward spring, in fact, well into the first of June, before anything like business commenced in the way of swarming, of which we had more than sufficient during the remainder of the season. During the first two weeks in July we had a continuous fall of rain, which retarded our hives greatly, and, I may say, the remainder of that month was the only working season we had here; since that time I have not experienced a more backward season. I may state, that since the season commenced for putting hives "down," as the term goes here, a friend of mine (Mr. Nairn) and I have managed to rescue from the hands of the destroyers no less than sixty-nine hives; those, we expect, will remunerate us for our struggle in rescuing them from the sulphur-pits. The best of those sixty-nine did not exceed 20 lbs., and some had no honey at all. Over all, in my own, I can only calculate about one-third per hive of what I had last season. I have reduced my hives by uniting from thirty-nine to fourteen, and which I calculate will make them pretty strong. I need not trouble you with all details farther than I have a great dread of the coming winter for our cottagers, as they cannot see the force of giving alms to poor bees.'—JAMES MCILWRICK.

Section Dividers.—*Apropos* to section dividers:—my man tried a piece of thin millboard for the purpose, and the bees devoured it!—H. G. W. A.

Carelochhead, Sept. 26.—'A very bad year this; only two swarms out of six hives (bar-frame). I will have about 20 lbs. of honey from two of them; but thanks to ten days in September, many of them have frames sealed to the very bottom. We have very little but heather here, and the extractor for that has not been invented yet. Will Mr. Raitt kindly give us his experience, we have not heard from him for a long time; he belongs to the heather district?'—ROBERT HAMILTON.

Wantage, Sept. 30th, 1881.—'I consider that bee-keeping, without the *Journal*, quite a farce, and your Leaflets contain an amount of information, easy to understand, and which would take a cottager a lifetime to find out without them. I presume that Christmas will be the time to become a subscriber to the *Journal*.'—W. SILVER, Jun., *Wantage, Berks.*

[Many thanks for the good opinion expressed. Subscribers may commence at any time of the year, but every new subscriber would find it wisely economical to date his subscription at least six months back, and get the Nos. of *Journal* for that period,—they teem with valuable information.—ED.]

Tring, Oct. 3rd, 1881.—'I have banished straw skeps from my apiary and mean to stick to bar-frame hives, with, perhaps, a look at a Stewarton. Not being sure but that I may have to leave here for two years next autumn, I have now reduced my stocks to three, in bar-frame hives, Abbott's Standard size, the frames of which, I think, are rather too large. The honey yield this year has been exceptionally good; the small amount I obtained last year I could tell you the weight of, but this I cannot, but know I obtained more than 60lbs. from one hive, which is now strong enough to stand the winter, and still has some brood comb. I read in the *British Bee*

Journal 'The Visit to Mr. Cowan's Apiary,' with pleasure. I before had Mr. Cowan's book, and think it is excellent and cheap. We are now having beautiful weather, but the bees have not worked much (there being not much food,—no heather) since the end of July; but when they did work the yield was something enormous. About six or seven weeks ago, a friend and myself drove fifteen condemned stocks for some cottagers, at a village near, but could not persuade them to get bar-frame hives, although some were very pleased to know that honey might be taken without destroying the bees. I have also transferred five or six hives for friends.'—G. H. B.

Hereford, Oct. 8th, 1881.—*A Pleasant Report.*—'You may remember I consulted you as to the supposed loss of two Italian queens in introducing. I am glad to be able to report that I was mistaken, for although there were a fortnight after introduction no eggs or brood in either hive, I noticed bees carrying in pollen; I then fed them gently for a time, and now I find in one hive young Ligurians hatching, and in the other plenty of eggs. My report for this year is favourable,—from ten hives I have taken 350 lbs. of honey, all in sections, well sealed and flat; my greatest yield from one hive was 75 lbs. net, this, by the way, was my only hive with frames across the entrance, and plenty of room at the back. I began with sections at the back and raised them; I was obliged to put on two tiers of sections during the height of the season. By the way, I believe no bee-keeper need have any difficulty in selling his honey, only it must be in marketable shape, either in nice sections, or in 1 or 2 lb. glass jars. I send my honey to a grocer, and he sells it on commission, it goes "like hot cakes."'—A. Watkins.

Downie, N.B., Oct. 8th, 1881.—'Allow me to say, with modesty, that your article "Wintering Bees," in this month's *Journal*, is most valuable and instructive, and so well timed. I regret to say that in some cases, in our quarter, my friends and myself were unable to intercept the brimstone pit, with all its inhumanity. Some good swarms were saved and united. I have heard of no good harvest of honey among bee-keepers, except to those who used comb-foundation, and managed their bees in accordance with the rules of advanced bee-keeping. My Italians (a grand stock now) are into warm winter quarters, and all other stocks strong. I have made up seven bar-frame hives stocked with bees, and sent a copy of Mr. Cowan's book for each hive, supers, &c., in aid of a bazaar to clear off some debt on our church. The spread of these hives over the country side may be a means of disseminating just the knowledge you are living and labouring to diffuse and circulate.'—John Main.

Queries and Replies.

Query No. 427.—1. *Ripening honey.*—I am thinking of using next season an extractor for taking honey, and I read from your paper that honey may be taken at intervals of a few days if allowed to ripen afterwards, what process has it to go through to ripen so as to be able to put it up in jars at once?—2. *Feeding late.*—I have driven, a few months since, a hive of bees which I did not feed at the time I replaced in bar-frame hive, and now, beginning of September, I find they have built six good combs; but they contain no honey, I have now fed them with 7 lbs. (?) of syrup, placing it in the empty combs at each end at intervals of a few bars, and it is wonderful where it all goes to, do they take it out and replace the syrup in the centre combs? The four centre combs are well covered with bees, so consider them strong enough in population without joining any more to them; but when shall I know when to give over feeding, I intend closing the four centre combs with dummies when done feeding, will there be any fear of giving too much sugar, and producing dysentery, shall I feed till they will not take any more? I must mention I have two hives in this condition, both strong in bees, but require feeding. 3. *Do Bees change the nature of syrup?*—Does the syrup, when taken by the bees, remain syrup, or does it undergo any change when stowed away by them in the centre combs, as I suppose they have taken it to?—Gilly-flower.

Reply to Query No. 427.—1. Our Correspondent will find all necessary particulars on page 26 of June *Journal* this year.—2. The bees generally remove syrup that is given to them in combs, and store it where they think best, if they think at all, for the time being, and that is generally where it will have the best chance of being evaporated. Though appearing to have been written at the beginning of September, this communication only arrived here on the 24th October. Had the feeding been done at the time named the bees would have had it sealed over, and there would have been no danger; but we cannot advise syrup feeding in quantity now. It will be better to give sugar cake when required. Two square feet of sealed comb is about the requisite quantity, and no more need be given.—3. Undoubtedly the syrup undergoes a change in the stomachs of the bees, because it comes into contact with their acid secretions, and is thus in degree converted to grape sugar.—Ed.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. P.—*Killing Drones.*—Bees killing drones is not always a sign that they have a queen, as the slaughter may be a consequence of impending starvation; but when, in autumn, the bees allow their drones to live it may be fairly taken as an indication of queenlessness.

Honey Jars.—The cheap honey jars are apparently too cheap to be worth much care in making, hence they vary sometimes in size. There is little doubt but that honey varies in density, and hence it is impossible to have jars that will always hold exactly any specified weight. Under such circumstances it is wiser to pack and sell at so much per jar, and not at per reputed pound. The same principle holds in respect of '1 and 2-lb. sections;' these are of 'reputed' weights, but whether the bees will put the full quantity in them depends not upon the will of the bee-keeper, but upon exigencies of bee-life beyond his control.

Fern Hill Lane, Gobowen, Oswestry.—No name having been sent with your communication we have been unable to reply, and hope you have not been scolding us very badly.

A Converted Brimstone Match.—On the first page of the August number of *Journal* our correspondent, who forgot to give his name, will find an explanation on the question of wooden-based foundation that we hope will be satisfactory.

H. Briggs.—*No Address.*—Moving four hives thirty yards, and having nearly two months to do it in, ought not to be a very difficult task. Half-a-yard per day would do it, advancing in line; but if there are insuperable barriers to that style of progress, carry them half-a-mile away for a time, and bring them home to the yard when the garden has been converted to the proposed timber store.

G. H.—We have been informed that the notice of the death of Signor Lucis Paglia, which had been forwarded to us, and which appeared in our October number, did not refer to the Italian queen raiser but to his father.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

DECEMBER.

The past month has been so exceptionally fine and open that even the most dilatory have had opportunity for 'fetching up' arrears, and making all snug and comfortable for the bees. The sharp snap of frost that commenced on the 5th October was a serious caution, and had it continued would have placed many in difficulties; it caught us, with three dozen Ligurian queens on the way, and but for the happy change we might have had reason to rue the late venture. Now, however, all but two are safe in various communities. Of these last one took flight, and was probably chilled, for she did not return, and the other died in the cage, having been introduced to a supposed queenless hive, but into which a hybrid queen from a nucleus stock had introduced herself. The 5th of November being a specially fine day here, a swarm of hybrid Syrians ventured out, and clustered on the roof of another hive; and so unusual an occurrence gave us no little concern, as we had no idea as to which hive they came from. Happy thought! We captured the queen and clipped her wing, and with a flour-dredger turned the bees into millers; and in a few moments, when they had discovered her absence, they went home, and the queen was soon given back to them. This proceeding may be worth remembering by others should a similar difficulty occur with them. We are glad to know of the increased anxiety evinced for the formation of County Bee-keepers' Associations, and of the increasing strength of those already in existence. Among the latest proposals are those of Leicestershire, Sussex, Derbyshire, and Somerset; and in the latter case a circular appeal has been sent out by Messrs. Charles Tite, of Fair View, Yeovil, and T. C. Head, of Somerton, accompanied by a fly-leaf, to be returned with answers to a few questions, and (it is hoped) a promise of membership and subscription. The questions are,—'Do you think the proposed Society would do good? How many persons could you induce to become members? Please send their names and addresses. Would a visit from the Expert and Bee Tent be acceptable at your Flower Show? Would you volunteer to give a simple lecture on "Bees and Bee-keeping" in any village near your home?' We think the idea a good one, and capable of considerable enlargement. As an instance, we would suggest that an endeavour be made to acquire such statistics as would be important to back any attempt that may presently be made to obtain Government recognition of bee-culture as a national industry. All who are intelligently engaged in the pursuit are alive to its importance, and to the necessity for a better understanding of its principles and practice by the people at large; and it is tolerably certain, from many facts that have come to our knowledge, and are generally patent, that the present voluntary system of education cannot always continue. On another page will be found an able letter from Mr. Jesse Garratt, of Hockenden, Kent, which will better explain the position we are alluding to than any words of our own. There is a point beyond which enthusiasm is suicidal; and although many have the heart and will to make great sacrifices for the benefit of their fellow-men, it cannot be right to expect or permit them to injure themselves permanently for the benefit of the nation, and so there will come a time when, as Mr. Garratt puts it, the question will have to be asked, 'What next?' and in reply we would suggest an appeal to the Government for aid. We will not presume to a knowledge of the best means of help, or the direction in which it should be applied; but we feel that it would be useless to ask for assistance of the kind hinted at, without being prepared with reliable statistics in support of our case. We would, therefore, urge upon the committees of the many associations formed and forming, the necessity for, as far as practicable, a census of the apiarian strength of the United Kingdom. The present winter would be a good time for doing

this; it would be a great step in advance, and though perhaps not perfect, it would at least be reliable, as far as it went. As a means of accomplishing this, and to be prepared for the contemplated appeals to Government, we would suggest that circulars be issued to all known bee-keepers asking them for returns that, when consolidated, would furnish grounds upon which to found the suggested application. If thought well, the duty could be entrusted to members of associations only; they may be relied on as having the interest of bee culture at heart; they would be active in the work, and their returns could fairly be depended on; and though this method would leave out unassociated counties, the returns, as far as they went, would be reliable and valuable. The county committees could map out the districts for each willing member to investigate, and the classification could be done by the British, and the information obtained should, we think, be as comprehensive as possible. For instance, there might be asked,—1. The name, address, and condition of the bee-keeper. 2. Is he a member of an association; and if so, which? 3. Number of stocks possessed on January 1, 1882, in frame, hive, and in skeps, and their estimated value. 4. Number of stocks destroyed to obtain honey in past year. 5. Weight of honey so taken. 6. Weight of honey extracted from frame hives. 7. Weight of super comb honey taken; from skeps; from frame hives. 8. Value of honey taken. 9. Number of swarms sold to dealers. 10. Number of swarms sold to non-dealers. 11. Value of swarms so sold. 12. Value of swarms retained. 13. Weight of wax obtained. 14. Weight of comb-foundation used in past year. And many other questions might be put.

Associations might also make returns of the number of their members, their funds, and the disposition of them in prizes, lectures, &c.; and dealers and others might be induced to furnish statistics of value.

If only two or three thousand returns could be obtained, they would be worth the trouble and cost involved, as they would be a basis for calculation, and their value would still be great, even though all the questions were not answered. To carry out the idea, we feel assured the public press would be helpful, and all papers in which bees and bee-keeping are discussed would join us in doing the very utmost to bring it to a successful issue.

BEE-KEEPING IN LINCOLNSHIRE.

Through a promise made to the respected Hon. Sec. of the Lincolnshire Bee-keepers' Association at their great show at Louth of late, we made a short excursion into that county on the 5th ult., and so thoroughly enjoyed the trip, the kind hospitality we received, the pleasure an insight into the effect of that Association's labours afforded, and the happiness of meeting many old friends and making new ones, that we cannot refrain from inflicting upon our readers a short narrative of the events as they occurred.

Though the day of our starting was most fine here (nine miles west of London), we found on arrival at Grantham that it had been raining in torrents the whole of the day, showing the little value of individual experience in regard to the general condition of the weather. The evening was most agreeably spent at Mr. Godfrey's cheerful fireside; and the pleasant addition of Messrs. Yates, Plowright, and Boulton to the circle, all old friends, staunch supporters of the present system of bee-culture, and exemplars of its successful pursuit, gave zest to the enjoyment, and left no opportunity for lull through want of a subject for conversation. How lightly passed the hours! Cheerful companions, a feeling of being 'at home,' a pleasant subject, or rather a series of them, to talk about, the opinions of good worthy men to listen to, a bright fire, brilliant light, a smiling glass, and a fragrant cigar; and who can wonder that we heard the clock strike one twice in succession before we dreamed it was Sunday morning?

Sunday took us to the magnificent old church, whose tall spire reminded us of a companion attraction in the town unceremoniously linked with it in the following doggrel inscribed over the door of a public-house:—

'Stop, traveller, this wondrous sign explore,
And say when thou hast viewed it o'er and o'er,
Now, Grantham, now two rarities are thine,
A lofty steeple and a living sign.'

The 'living sign' was a stock of bees in former days; but now, alas! it is what was written of it with prophetic pen many years ago, evidently by one who did not love bees, and was not enthusiastic in their praise, viz.:—

'Oh, Grantham! ye have little to boast,
For it's only a bee-hive stuck on a post.'

Only a bee-hive now, for the bees have departed, apparently not caring to be 'stuck on a post' when so many well-managed apiaries are 'living signs' and give proof of the advance made in their culture in Lincolnshire.

Monday morning at nine found us, a party of four, including Messrs. Godfrey, Yates, and Boulton, *en route* for Sleaford, about twenty miles from Grantham, and on the way we were joined by Mr. T. F. Rippon, of Ancaster, whose bees did remarkably well this year, gaining him second and fourth prizes at Louth for the best glasses of run-honey. At Sleaford

we visited the apiary of Mr. Jackson, also a prize taker, and having overhauled his bees, discussed their merits, and partaken of his kind hospitality, we mounted the trap that had been sent from Evedon, a few miles off, and drove to the farm of Mr. R. Thorpe, where a pleasant surprise awaited us. Mr. Thorpe, thanks to 'the Association,' has been fully imbued with the advantages of bee-keeping in connexion with farming, and has taken to the business most enthusiastically. On page 93 will be found a communication from him showing his ardour, and the surprise his activity created amongst the cottagers in the neighbourhood; and it was exceedingly pleasant to find, notwithstanding a few errors easy of remedy, that he had gone into the work so intelligently and well. His apiary is wholly composed of condemned, but now rescued, bees, thirty-six stocks in all, and excepting a very few late arrivals that had been fed into wintering condition, all are in frame-hives, comfortably packed in chaff with chaff cushions (or pillows) on the frames, and all (after a little uniting, which was most easy on this particular occasion*) are likely to prosper. They are principally arranged under long sheds of lean-to form, the only demerit being that they are too close together, an evil which will be remedied prior to the busy spring season. These thirty-six stocks have been rescued from death by Mr. Thorpe. They are on four, five, and six, or more frames well stored and sealed. Most of them have hatched out batches of brood. All have queens, and when a little more dispersed, there is every probability of their doing well, and amply repaying their spirited owner. Mr. Thorpe fully intends to cultivate crops, that, in addition to yielding a paying return in fruit and seeds, will afford pasture for the bees, and enable them to give a second return in honey and swarms, and he will be very glad to receive suggestions on the subject from any one. An eminent Lincolnshire authority, in reply to questions, has told him, 'It will not answer to sow any of the usual bee-flower seeds in a wood. They are all plants that delight in a free exposure to sun and air, and bees do not visit woods so much as open fields. 2. A field of poor clay if ploughed in the winter, and a surface of fine "weathered" soil produced, would grow borage, phacelia, limnanthes, and so on; but mignonette grows best in a deep rich open soil. 3. Hedge-rows, if ploughed and harrowed, would, perhaps, do best for mignonette and sweet alyssum. 4. Arabis for early spring does not like clay; if heaps of broken bricks, stones, and road scrapings be thrown up in any odd corners, Arabis mixed with wall-flowers may be stuck over them. 5. There is a growing demand for bee-flowers, and a sale might be found for assortments by advertising.' Mr. Thorpe now wants to know 'What would be the best sorts to sow, and the most suitable soil, and time of sowing?' and we trust our gardening readers will be good enough to give him and others the full benefit of their experience in this *Journal*.

We spent nearly four hours with the Evedon bees, and while busy as bee-masters can be when at their favourite pursuit, our labours were pleasantly interrupted by the arrival of the Hon. M. Finch Hatton, a vice-president of the Lincolnshire Agricultural Association, who had been previously interested in Mr. Thorpe's venture; and on leaving he undertook to do all in his power to get the Lincolnshire Bee-keepers' Association affiliated in some way with the Agricultural: and this we understand has been done. After four hours' work an hour was spent in discussing the merits of Lincolnshire poultry and mutton, and a profusion of other delicacies with which his horn of plenty was stored, Mr. Thorpe ordered horses, and bidding adieu to Evedon and its hospitality, drove to the residence of Mr. J. Brown, of Swineshead, where, after a sumptuous tea, three or four hours' bee talk, not, perhaps, especially entertaining to the ladies, varied by plenty of good cheer, our party retired to bed.

Next morning, after breakfasting on the best of everything, we visited our host's apiary, and all present were delighted with the admirable condition of his bees. There were twenty-four stocks in splendid condition in frame-hives of one pattern, well packed and quilted, the only drawback being, as in Mr. Thorpe's apiary, the hives were too near to each other; but this will be remedied in time. While collecting the bees, Mr. Brown erected a long brick building with tiled roof and open front resting on pillars that, as a precaution, had been painted of different colours, and gradually filled it, saving about seventy stocks that otherwise would have been brimstoned. Mr. Brown is a large fruit-grower, having many acres of orchard, and one object in keeping the bees is the fertilization of blossoms, with the hope also that the bees will repay the cost of their maintenance. Considering that he grows flowers by the acre for the Manchester market, and crocus-bulbs by the rood for the London trade, there is little doubt but that

* The doctrine that similarity of odour predisposes bees to friendliness was particularly notable here. The bees had all been fed with the same kind of syrup, and in many instances had to begin work with it on comb-foundation of one make in new hives, and there is reasonable ground for supposing that under those conditions they all gave forth a similar odour. At any rate, we judged this would be the case, and, *sans cérémonie*, bees were united off-hand, and there was no fighting.

the bees will do something more than simply keep themselves.

The indefatigable Mr. Godfrey was not present at this inspection of hives. He had stayed for the night with Mr. E. B. Horner, of Swineshead, one of the party at Mr. Brown's, and, having scented other bee-keepers, was too busy making converts, and enlisting the sympathies of some of the members of the Agricultural Society's committee to note the lapse of time; but he turned up in readiness for a visit to Belvoir Castle Grounds in the afternoon.

In the meantime, having tendered our best thanks to Mr. Brown for the very hospitable reception accorded to us, Mr. Thorpe drove us to the railway station, and in little more than an hour we were back in Grantham. Here we were at home in a few minutes with our fellow-traveller, Mr. Yates, a veritable descendant of Tubal Cain, and a 'man of might,' who fashions ploughshares by the hundred, and harnesses the ploughs to steam-engines, the blasts of whose breath would take the wind from the sails of his great trade ancestor could he but see the mighty machines at work. Yet with the weight of many thousand pounds worth of working machinery, and its responsibilities on his mind, our friend can never resist an offered opportunity for saving the lives of working bees, and striving to teach their would-be destroyers a better way of management. And his method is one calculated to do an immense deal of good, for his lessons are conducted at the homes of the people whose bees he has rescued. He buys them, and feeds them up on their own stands, and thus forces upon their former owners a knowledge of the value of what they would otherwise have destroyed, and we trust that many who read these lines will adopt his method of reforming bee-icides. In this way, Mr. Yates has quite a catalogue of bee-stations, having nearly sixty stocks scattered over the county, about a dozen of which are within his own curtilage. Like all enthusiasts, Mr. Yates has tried nearly every kind of hives and appliances that have been manufactured; and perhaps some day he will give the world a few of his ideas as to which he most approves. All his bees in the home apiary are in first-class order, and well apart in the large garden; one stock of Ligurians from a queen obtained from Mr. Baldwin, Bromley, being specially excellent in strength, beauty, and gentleness, and the bees would win at any show where these qualities are in demand. After wishing health and prosperity to Mr. Yates, his wife, and family, in Rip Van Winkle fashion, he packed us off in his carriage to Belvoir with orders to return at 8 p.m. to discuss the merits of some grouse he had 'potted' on the Yorkshire moors some weeks before; and, business preventing his joining us, Mr. Plowright took his place. Mr. Boulton took the reins, and, with Mr. Godfrey safely returned, away we went to the Castle.

Here in grounds of great natural beauty, with Mr. Ingram for our guide, we wandered as in a paradise, discoursing of bee-flowers, of which Mr. Ingram is making special study, and will one day report upon for the benefit of all who love the bee. A few years since Belvoir gardens lacked one essential to perfect beauty—running water; but now it has a natural supply discovered by aid of divining-rods (laugh who may, Mr. Ingram assured us of the fact) on high ground, where its presence was not suspected, but where with little digging it burst forth, and now trickles pleasantly down the hillside over rocky falls that look centuries old, and like the work of nature. So interesting were the various objects that greeted us, that luncheon-time was at hand too soon to permit examination of the bees, and the evening being cold, they were not visited except by Mr. Roberts, of Belvoir, who gave a favourable report.

At luncheon we were joined by Dr. Emmerson and Mr. Ball, of Leicestershire, whose object was to gain information as to the best means of establishing an Association for that county, within whose borders we then were. As a matter of course, that important feature was the chief topic, and when 'homing' time arrived, it was evident that a Leicestershire Association was a foregone conclusion, and the hope was generally expressed that Messrs. R. and G. Symington, though unable to keep bees under present circumstances, would give their county the benefit of their large experience. The shades of evening warning us that it was time to depart, we returned by the way we came, light of heart, and wondering what next would happen to show the extending interest awakened in behalf of our favourite pursuit.

Eight o'clock found us ready to 'make game' of the grouse now claiming attention, and under the direction of our returned companion, and host of the evening, they were thoroughly appreciated even to the very backbone, when the duties of the day being over, and (individually) our allotted time being nearly spent, our party broke up amid many kindly expressions of regard that have laid the foundation of pleasant reminiscences.

Wednesday morning, our visit nearly at an end, but our good friend Godfrey's apiary unexplored. There is an old saying, too often true, that 'the shoemaker goes worst shod,' and considering the immense voluntary labour Mr. Godfrey imposes on himself for the common weal, a slip-shod apiary in his keeping

would not have been a surprise; but instead, we found the whole of his stocks in first-rate condition, and one especially worthy of mention, for the reason that it had been a source of pleasure and instruction to very many inquiring friends, and was still in excellent condition in all respects. It was in an Abbott's Observatory hive, of the pattern now being described in the *Journal*, and those who are anxious to initiate their neighbours into the moveable-comb system of bee-culture cannot do better than make such a hive, and keep it in use, as, on the Combination-hive principle, it can be worked so as to exhibit the movements of the bees at any time without opening it, and in almost perfect security. In Mr. Godfrey's garden, it stands in the open on a grass plat, but it would be better if placed so that the bees entered the hive through a boarded fence or screen, as the bees (if not as gentle as they should be) would be less likely to resent interference.

But the time came as it always will, when even the best of friends must part; and with every feeling of regard for, and a grateful sense of the many kindnesses received from our old and new friends, we bade farewell to Grantham, only regretting that Messrs. Desborough, Brett, and Sells, who were to have been of our party, had been prevented joining us, and that we were unable to accept the invitation of Dr. Russell and Dr. Carline, of Lincoln, to visit their apiaries.

HOW TO MAKE A FIRST-CLASS OBSERVATORY HIVE.

'Merci,' in reply to our note on p. 146, says, 'My primary object (in asking for directions for making an Observatory hive) was study at home, though if that and exhibition can be combined, as I gather from your remarks it can, so much the better. I should say, therefore, one adapted for several frames side by side (certainly not in the same plane), and to receive ordinary frames. The kind of frame is Abbott's broad-shouldered Woodbury shape, 14½ by 9 being the inside measurement of my hives. I had thought of making the hive proper of mahogany, and putting it in a painted case to protect it. A word of advice as to whether mahogany or some other wood is most suited would also be esteemed a favour.'

As regards the wood of which to make such a hive, the taste of the intending maker must be allowed play, as almost any kind of wood will answer the purpose. Mahogany and pitch-pine look handsome when French-polished or varnished, and being hard are less liable to injury by dint or rub, but with this exception ordinary sound pine or yellow deal will do. Soft pine would be best for the floor of the hive, as being of a spongy nature, it is not so cold as the harder woods, and will be more comfortable for the bees. The kind of hive demanded is in the nature of that for which the first prize was awarded, and a highly eulogistic official report rendered, by the judges at South Kensington Show in 1879—see p. 197, Vol. VII. *British Bee Journal;* and the only point in which we shall fail in fulfilling the actual requirements is in respect of the frames, which, when in use in the observatory, must be denuded of the broad-shouldered ends which render them so useful and valuable in ordinary hives. The illustration shows the hive minus the

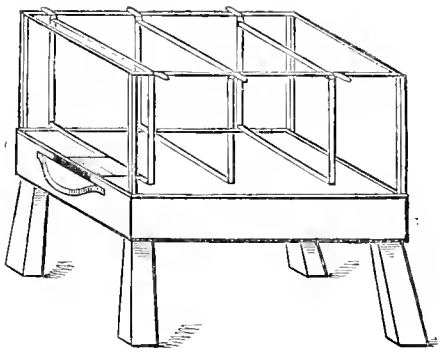


Fig. 1.

glass crown-board (?); but as it is intended to be put in a case, we shall, in our description, dispense with the legs, as they can be added at pleasure.

First, then, to get a piece of wood of the kind determined on, about five feet long and an inch and a quarter square, and cut into it two grooves, along the whole length. These are to receive the plate-glass walls of the hive, and must therefore be of sufficient width to admit them—say a quarter to three eighths of an inch, and they should be not less than a quarter of an inch deep, running down the centre of the two sides in which they are made. Now with a plane take off the angle to the dotted line at the corner of *a*, fig. 2, and cut the piece into four equal lengths to form the corner posts of the hive. To fix them in position, four pieces of wood will now be required, to form the base, *c c*. These should be an inch thick, if great neatness is aimed at, so as to be stout enough to receive nails or screws from the inner side, which will prevent defacement of their exterior. Two of these pieces to form the sides of the base should be thirty inches in

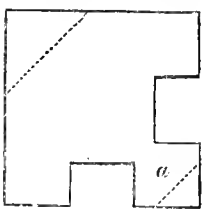


Fig. 2.

length exactly, and, say, four inches wide, cut perfectly square at their ends,* and close, fair, and flush with each end, one of the corner-posts is to be screwed as at *c*, with three two-and-a-quarter inch screws,† care being taken that the grooves are in position to receive the glass, which will be insured if corner *a* be kept inward. The two sides being thus far complete, we would cut two pieces of board of the thickness the glass is to be,‡ and of the length to fit the grooves, and would slide them in to represent the glass side-walls, and keep the corner-posts steady. The front and back now require to be adjusted, and bearing in mind that the side-walls are to be exactly 14½ inches apart, that the grooves in the corner-posts are of the thickness of the glass of which we are uncertain, we would cut two pieces of board to represent the glass walls of the front and back, and fit them till they fill the grooves, and keep the side-walls at the exact distance apart desired—viz., 14½ inches. This accomplished, we would tie or brace the parts together temporarily, while the bases at front and back are fixed in their places by screwing at the corners, as was done with the side pieces. The skeleton of the hive will now be formed, and the four boards reduced to 8¼ inches wide may be sent as models for the glass-cutter to work by, while preparation is being made for putting in the hive floor. This, as we have said, had better be of soft pine, and to hide the ends of the boards the whole should be let in level with the top of *c c*. Supposing inch pine to be selected, it will be necessary to screw fillets (strips) of wood about ¼ inch thick, and, say, two inches wide all round the inner side of *c c*, one inch (or the exact thickness of the pine-boards) from the top of *c c*, to form ledges on which the floor may be laid and fixed. In cutting the boards for this purpose, they should first be laid across the hive base, touching the front and back pair of corner-posts, and should be carefully marked off on the inner underside, and fitted down on to the fillets above described; then when pushed close to the corner-posts it will be easy to mark the shape of the posts on the corners of the boards, and to cut them to fit, leaving a right-angled gap in the centre of the floor space, which it will be quite easy to fill up. In fixing the floor-boards, it will greatly strengthen the whole fabric if the screws are driven diagonally through their ends, or edges, into the base pieces, which will render the work almost solid. Two strips of wood an eighth of an inch thick, and of the same kind as the base pieces and corner-posts are made of, and an inch and three quarters wide, rounded on one edge to form a bead, should be fitted along the top of the sides of the base to cover the joints and the screw heads, the beaded side being outside and even with the faces of *c c*. On these the side glass-walls will rest, which will make them a height of eight inches and three eighths above the level of the floor-board. Two other pieces of similar width to the foregoing, and a quarter of an inch thick, will be required for the front and back, which will raise the glass walls an eighth of an inch higher than the side walls, which will be all right.

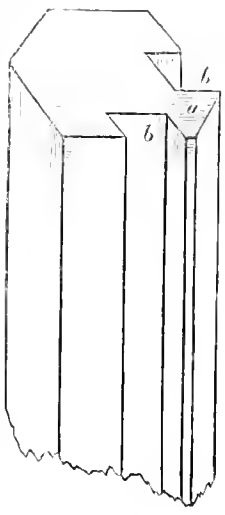


Fig. 3.

The entrance will now demand attention, and it can be cut out of the solid under the front piece last mentioned, or a portion of the front piece itself can be cut away, the latter being the simpler method. The glass when it comes from the glass-cutter's will not have a smooth edge, and as the side-pieces (the walls) will have to serve as runners for the frames, it will be necessary to grind them smooth, which may be done by rubbing them on a flat doorstep in a mixture of sharp sand and water. They should be a little rounded on the top, the angles being ground away. When the glasses are in position, the tops of the corner-posts should be cut off even with the glasses at the back, and the outside corners diagonally opposite *a* may be taken off with a spoke-shave or chisel, from *nothing* at the base *c* to the dotted line in fig. 2, leaving the tops of the corner-posts as in fig. 3, when the whole will appear in horizontal section as in fig. 4, and will be ready for the

* Joiners would mitre the corners of the base together for the sake of appearance, in which case the pieces would have to be longer, and the ends cut at an angle of 45°; but amateurs will scarcely attempt to make such 'joinery' in this case.

† In making the holes for the screws, care must be taken to bore far enough, but not through the side pieces; if not far enough, turning home the screw will burst out the wood (if it be a hard kind), which will be worse than screw or nail marks on the outside. But perhaps many will not care to save appearances in this respect, in which case screws countersunk into the wood may be used from the outside, screwing into the corner-posts or through them for longer screws may be used without detriment.

‡ It would be well in the first instance to inquire as to the thickness the glass obtainable will be, as it is not always easy to get it of special gauge, unless at considerably heightened cost. Odd pieces large enough for the purpose can often be obtained from the waste crate at low prices. Hence it will be advisable, if possible, to select the glass first, and proceed; with the thickness in view.

frames and crown-board (?); but as these will require further illustration, their description

Fig. 4.

will be deferred to another number. In the meantime, anything not clear to our readers, if they will notify us, we shall be happy to enlarge upon it.

(*To be continued.*)

BRITISH BEE-KEEPERS' ASSOCIATION.

A Committee Meeting was held at 105 Jermyn Street, on Wednesday, November 16. There were present: Mr. T. W. Cowan (in the Chair), Rev. E. Bartrum, Rev. G. Raynor, J. M. Hooker, H. Jonas, W. O'B. Glennie (treasurer), and the Rev. H. R. Peel (hon. sec.). The minutes of the last meeting were read and confirmed. The balance-sheet for the month ending October 31st was also read, showing a balance in hand of 21*l.* 1*s.* 7*d.* It was resolved that a circular be sent to all those members who were in arrear with their subscriptions.

Letters were read from Mr. Henderson, the librarian, stating that a catalogue of the books had been made out, and suggesting that arrangements should be made for their circulation amongst the members by means of the book post. It was resolved, 'That Mr. Henderson be empowered to draw up rules for the management of the library in accordance with his suggestions.' Votes of thanks were passed to Mr. A. Neighbour and Mr. J. J. Hunter for valuable donations of books to the library.

The Secretary presented the corrected copy of *Modern Bee-keeping*, as revised by the Rev. G. Raynor and the Chairman in accordance with the suggestions given by the several members of the committee. It was resolved that the revised work be adopted, and the Secretary do make arrangements for the publication of the third edition. A vote of thanks was accorded to Mr. R. R. Godfrey for the use of the woodcut 'Living under Difficulties,' and the Secretary was requested to solicit the use of the same for the frontispiece to the third edition. On the report from Mr. Jonas relating to the collection of hives and bee-keeping appliances at the South Kensington Museum, it was resolved, 'That Mr. Jonas be empowered to make the necessary arrangements for the completion of the collection.'

The Chairman reported that the Executive Council of the Brighton Health Congress had consented to grant the Association space, free of charge, for the exhibition of honey and bee-keeping appliances. The Secretary was requested to communicate with several manufacturers and other members inviting them to assist the Committee in forming such an exhibition. The offer made by the Hon. and Rev. H. Bligh, through the *British Bee Journal*, to give 10*l.* as prizes for the promotion of cottage apiaries, was considered; and it was resolved to invite the Hon. and Rev. H. Bligh to attend the next Committee Meeting for the purpose of considering with him the best means to be adopted for the purpose.

The Secretary presented a proof-sheet of the proposed Schedule of Prizes for bees, hives, honey, &c., to be offered for competition at the Royal Agricultural Show, to be held at Reading next year. It was resolved to submit a similar schedule for the consideration of the Council of the Bath and West of England Agricultural Society, to be offered for competition at their annual show, to be held at Cardiff during 1882.

The Library.—The librarian desires to mention, with no slight degree of satisfaction, the result of his appeal for Vol. I. of the *British Bee Journal*. Two members—Mr. J. Walton, Honey Cott, Weston, Leamington, and Mr. F. Bennett, Shifnal—have placed the desired volume at the disposal of the Association. The offer of the former having reached the librarian first, has been accepted, and the book is now deposited in the library. To both of these gentlemen the librarian desires, on behalf of the Association, to tender his sincere thanks; as also to the donors of the following books:—

Mr. John Camaschella, Derby Villas, Forest Hill:—
Some numbers of the 'Bee-keeper' and 'Bee-keeping.'

Mr. J. Hunter, Cranbourn Street, Leicester Square:—
The A B C of Bee Culture. By A. I. Root. Medina, 1879.
A Book for Bee-keepers. By Alfred Rusbridge. 1875.
Bee-keeping (Manuals for the Many). By J. H. Payne. 33rd thousand.
The Practical Bee-keeper. By John Milton. 1851.
The New Bee-keeper's Text Book. By A. J. King. 1878.
The Apiary. By Alfred Neighbour. 1878.
A Manual of Bee-keeping. By John Hunter. 1879.
Practical Bee-keeping. By Frank Cheshire. First and second editions.
The Bee-keeper's Magazine. Vol. I. New York, 1873.

Rev. E. Bartrum, M.A., King Edward VI.'s School, Berkhamsted:—
The Stewarton: The Hive of the Busy Man. By the Rev. E. Bartrum. 1881.

As the library now contains a large proportion of the more recent English and American works on apiculture, the Committee are desirous that it should be made accessible to the members of the Association. They have instructed the librarian to draw up rules which will enable the members to avail themselves of the advantages of the library. The librarian considers that the best method of circulating the books would be by the aid of the book-post, and has accordingly drawn up the following regulations:—

1. That the postage of the books from and to the library be defrayed by the borrowing member.
2. That no book be retained longer than fourteen days.
3. That, in the event of the book being lost or damaged while absent from the library, the borrowing member engage to replace or repair it.

The librarian will be pleased to furnish information as to the contents of the library. He also desires to say that he would be much gratified by being favoured with further donations of either old or recent books on apiculture, in order that, bibliographically, the library may be rendered more complete. Communications to be addressed to Mr. G. Henderson, Clarendon House, Ealing, W.

MR. BLOW'S TOUR THROUGH WILTSHIRE.

The following is a summary of the Lectures delivered at the various meetings during the Wiltshire tour by Mr. T. B. Blow.

My object is to advocate the claims of the newly formed Wiltshire Bee-Keepers' Association, and I will just explain why various county Bee-Keepers' Associations have been established, and their objects. A century or two ago bees were very extensively kept in this country, their honey being then used for many of

the purposes for which sugar is now employed. Mead in those days was a very much more common drink than at the present day. The wax was utilised for tapers, candles, and many other purposes. When sugar became common and cheap, bee-culture fell into disuse, and in place of wax various mineral and vegetable substitutes were found. So completely had bee-culture died out that a deal of the honey that was used was imported from various foreign countries. Now a number of gentlemen who had the interest of their country at heart gave attention to the matter, and came to the conclusion that it was possible, not only to revive this industry, but to reanimate it in a much better form; thanks principally to the efforts of American bee-farmers. They contended that if the honey could be produced here, it should be produced, and that money should not be sent out of the country for what was wasted here, simply from lack of knowledge on the part of the bee-keeper, and want of sufficient number of bees to collect it.

Here was a trade that had the advantages that no other trade that I know of possesses, viz. no payment for raw materials or labour, and yet it was neglected. They saw what an opportunity was open for, 1. Benefiting the country by increasing its wealth, for each pound of honey collected adds to the income of the nation; 2. Benefiting the cottagers by increasing their incomes, by imparting to them knowledge of advanced bee-culture, and so enabling them to get a higher price for their honey; 3. Benefiting the farmer, the gardener, and the fruit-grower, for large numbers of bees kept mean large crops of fruit; 4. Benefiting the bees themselves, by teaching their owners to spare their lives, for no advanced bee-keeper is so foolish and wasteful as to kill his bees. They therefore formed the British Bee-keepers' Association, and I will read from the report the avowed objects of that Association. (Here the objects of the Association were read from the report.)

I have shown how the British Bee-keepers' Association was established, and its objects, and will now come nearer home and speak of the newly formed Wiltshire Bee-keepers' Association.

Your hon. sec., Rev. W. E. Burkitt, seeing that so many County Associations were being formed, and rendering so much good work, determined that Wilts should not be behind, more especially as it was such a good county for bee-keeping. He took steps to have the Bee Tent of the British Bee-keepers' Association at Hungerford in the early part of the summer, and to have an exhibition of bee-keeping appliances on show. And I must remark that a more creditable collection I never saw out of London, and it, too, the work of amateurs; seeing this was enough to show that Wilts would not be long behind, having in it men of this stamp. The result was the formation of the Wiltshire Bee-keepers' Association. Now I want to show what the Association intends to do, and why it deserves the support of even those who are not bee-keepers. (Here Mr. Blow thoroughly explained the work of the Association, and the many advantages it offered to those who kept bees.) Now to those who do not keep bees it is no mean advantage to know where to be able to procure honey of the most desirable quality, and to know also that the subscription money is spent for the benefit of the country—a mild form of protection; in fact, a kind of subsidy paid to enable English bee-keepers to get knowledge how to raise their honey in good form, and to be able to keep the foreign product out of this country, a much better plan than that of late we have heard so much of from the Fair Traders. This keeping out of the foreign honey deserves more attention than is usually supposed. The annual imports of honey amount to many thousands of pounds, and all this should and could be produced here.

Now I trust that I have shown that there is plenty of work in store for the Wiltshire Bee-Keepers' Association and that it is deserving of your support. I therefore trust that many will give in their names as members to to Mr. Burkitt. (Mr. Blow then devoted about thirty minutes to practical bee-keeping, having a host of appliances at his disposal.)

Now apart from practical bee-keeping, there are some points that may be of interest. It is proved that bees have been kept as domesticated insects for thousands of years. We read of Canaan as a land flowing with milk and honey; and on the papyri from Egypt mention is made of the bees and honey, and a hive is represented on an ancient tomb at Thebes. Mahomet in the Koran mentions the use of honey as medicine, and it is still a favourite food and medicine with the Bedouins of north Arabia. It is remarkable that the only creature that Mahomet assumes the Almighty to have directly addressed is the bee; he says, 'The Lord spake by inspiration to the bee, saying, Provide thee houses in the mountains and the trees, and of those materials wherewith men build hives for thee.' This proves that in those days hives were built of various materials. Al Beidawi, the eminent Arabic commentator in the Koran, says the 'houses' alluded to are the combs, whose beautiful workmanship no geometrician can excel. This shows that considerable attention was paid to bees, the beautiful buildings of the combs being noticed by Mahomet. A still higher antiquity can be traced in the Sanscrit, wherein *ma* signifies honey; and *madhupa*, honey-drinker. *Madhu* has clearly the same signification as our mead. In Chinese *mat* signifies honey, thus showing a second derivation in this Turonian term from a more primitive language from whence both flowed. In the Greek and Teutonic languages, two branches of the Aryan stem, the names of the bee, *Melissa* and *Bienne*, are clearly derived from the constructive faculty of the insect, to which the early Sanscrit also points. There are sixteen species of the genus *Apis*, all confined to the Old World. The New World genera of Trigona and Melliponа are of interest, as they seem to be Nature's first attempts to construct the genus *Apis;* and, according to evolutionists, they would form very good links indeed. They are stingless (and in this point I am sure that bee-keepers would wish that Nature had never gone further), and are otherwise not so perfectly made. They do not build their cells with the same degree of accuracy, being much more lavish in the use of wax. Both genera are social and honey-gathering, and their head-quarters are in Australia and South America. The only instance of the occurrence of the genus *Apis* with the genus *Melliponа* in the Old World is at Java. Thus we see that it is not the bees of the genus *Apis* alone that collect honey, almost every country being furnished with honey-gatherers of some genus or other.

Foreign bees deserve some attention. There is the Egyptian bee, which is taken up and down the Nile on rafts (sometimes as many as 4000 hives on a raft), and so two harvests are gained. The ancient Greeks used to move their bees from Achaia to Attica for the same purpose, and this plan has also been tried on the Mississippi. The Ligurian bee is, doubtless, the golden-banded bee mentioned by Virgil. Carniolan bees from Austria are noted for their gentle disposition and great working powers. Much good has been done by the introduction of foreign races into this country, though on this matter the Americans are far before us.

I attach so much importance to this matter that I intend to go to Cyprus and the Holy Land in December, to import large numbers of the bees of these countries. In Syria and Palestine bees are much kept, and at Bethlehem the wax is used for the pilgrims' tapers, and a profitable trade done. Though honey of some districts is highly esteemed, there are parts that produce uneatable honey. Xenophon relates that during the retreat of the Ten Thousand the men fell in with large quantities of honey, and that all who partook of it were attacked with

vertigo and headache. The celebrated botanist Tournefort, in the seventeenth century, found near Trebizond large quantities of *Azalea Pontica* and *Rhododendron Ponticum*, which, though sumptuous in blossom, had a reputation among the natives for producing the same symptoms, and he therefore concluded that it was honey from these plants which caused the bad results among the soldiers of the Ten Thousand.

WILTS BEE-KEEPERS' ASSOCIATION.—AN EXPERIMENT.

I believe Mr. T. B. Blow, expert of H. B. K. A., is sending you a report of a Lecturing Tour he has just made with me through Wilts; but he will probably not mention how much interested all who heard him expressed themselves with his addresses, and their appreciation of the willing help he was always ready to offer.

It occurred to me a few weeks ago, that the best way of making the W. B. K. A. better known, and extending its influence, would be the delivery of practical lectures by an expert, in some of our towns, during the winter. On mentioning this idea to Rev. H. R. Peel (whose zeal in behalf of the County Associations is so well known), he at once most kindly offered (at his own expense, in order to test the plan) to send down Mr. Blow for a week; the arrangements being, that the lectures should be *entirely* free, that the W. B. K. A. should engage suitable rooms, and duly advertise the addresses, getting them as fully reported as possible. The steps taken to do this were: invoking the aid of the clergy; advertising in all the local papers, giving a full list in each of the time and place of all the lectures; getting letters and paragraphs inserted in most of them a week beforehand; distributing hand-bills (this is best done in towns through the crier, whose bell we also avail ourselves of an hour before the meetings, at a small expense); circulating hand-bills and prospectuses of the W. B. K. A. in the adjoining villages, and sending them to every incumbent and magistrate within four or five miles of a lecture.

It may encourage other County Associations to go and do likewise if I briefly state the result of our tour.

We commenced at Salisbury, on Monday, Nov. 7th, at 2 o'clock, in the Council Chamber, E. F. Kelsey, Esq., mayor, in the chair. The archdeacon and many country parsons were present; 12 new members joined our Association. Warminster, Nov. 8th, at 8 o'clock, in the Athenæum, Joseph Hinton, Esq. (an extensive bee-keeper), in the chair; 2 new members. Trowbridge, Nov. 9th, at 7, in Hill's Hall, Major Clark in the chair; 8 new members. Devizes, Nov. 10th, at 3 o'clock, in New Town School, Rev. J. Hart Burges, D.D., in the chair; 6 new members. Chippenham, Nov. 11th, at 2.30, in Town Hall, Rev. J. Rich, vicar, in the chair; 8 new members. Malmesbury, Nov. 11th, at 7, in Schoolroom, the Rev. G. Tucker, vicar, in the chair; 5 new members. Swindon, Nov. 12th, at 3 o'clock, in Town Hall, Capt. C. Wykeham Martin, R.N., in the chair; only 1 new member—this, though the largest town we visited, from some unexplained cause, afforded the smallest audience; but, in spite of very small attendance in some places, the Association gained strength daily, and the seed sown will doubtless bring forth more fruit with the new year.

On our way we visited six apiaries, the owners gladly availing themselves of Mr. Blow's advice and professional assistance, which he was ever ready to give. When needed Mr. Blow's addresses were thoroughly practical, giving full directions for bee management in the plainest possible manner, and were much appreciated by all who heard them. Nearly an hour was generally spent after the lecture in answering questions, and explaining the various articles exhibited, which consisted of bar-frame hives, one very simple one, the other a very complete one, on Abbott's 'Combination' principle; a flat-topped skep, fitted into a rough square box, so as to take a crate of 21 1-lb. sections, the said box being capable of serving as a 'Makeshift' bar-frame hive; and a useful collection of apiarian appliances, and also honey, both in sections and extracted. At Trowbridge, I should mention, some useful and very cheap bar-frame hives were exhibited by Mr. J. E. Wilshire, of Semington, for which he gained a 1st and 2nd prize at Colne, in September last; and a capital regulating feeder, invented by Mr. Blow. Many copies of Mr. Cowan's new book and *Modern Bee-keeping* were sold, and Abbott's *Leaflets*, Mr. J. Desborough's lecture, and a number of odd copies of *B. B. J.* (kindly contributed gratuitously by the Editor), were given away.

The receipts and expenditure were nearly as follows:—

PAID—Hire of rooms, advertising, and * Hon. Secs. travelling, and other expenses, 8*l.* 18*s.* 8*d.*

RECEIPTS—New members' subscriptions, 10*l.* 12*s.* 6*d.* Special donations, 15*s.*; total 11*l.* 7*s.* 6*d.*

Balance in favour of Wilts Bee-keepers' Association, 2*l.* 8*s.* 10*d.*

Should a similar tour be projected elsewhere, I venture to suggest that, if time could be spared, the lectures should only be given on alternate days, the intermediate ones being devoted to visiting any bee-keepers near at hand, anxious to avail themselves of the assistance of an expert; this, I am sure (from the experience we have had), would be much appreciated, and, I think, pay the extra cost, and do more to advance the interests of the Association, and bee-keeping in general, than anything. I should like to see this first attempt followed up *now* (if funds admitted), during the winter, by some still more homely addresses in village schools, by any friends who would do it 'for love;' and then next spring (but this would be a more difficult and expensive affair) by an expert going about provided with some cheap hives, and, I suppose, a hawker's license, in a gipsy's caravan, giving plain lectures on the village green, practically illustrated (then, on the next day, before leaving), by his showing cottagers how to drive their bees, make artificial swarms, put on supers, &c. &c. *Ocular demonstration*, I am convinced, is the only way of convincing the labouring class generally, that there is a more excellent way than that practised by their grandmothers. Much, however, might be done in this direction, if every member of a County Association would devote what time he could spare (as I know many do) to such work among his neighbours.

To conclude this long yarn, let me state, that the Wilts Bee-keepers' Association only began to be talked about in June, and now numbers 98 members, of whom 44 joined during the tour; and several invitations to hold bee shows next year have already been received.—W. E. BURKITT, Hon. Sec. W. B. K. A., *Buttermere Rectory, Hungerford, Nov.* 18, 1881.

BEE-KEEPERS' ASSOCIATION FOR EAST KENT.

On Monday afternoon, Oct. 24, a meeting was held in the Cathedral Library, Canterbury, for the purpose of considering the desirability of forming an East Kent Bee-keepers' Association. The chair was occupied by the Dean of Canterbury; and there were also present: the Bishop of Dover, the Rev. R. N. Gandy, Mrs. Harrison, Captain McDakin, the Rev. W. Flower, the Rev. G. Beardsworth, Messrs. J. B. Plumtre, J. Martin, A. Foreman, and other ladies and gentlemen. The Rev. A. Welch, vicar of St. Mary Cray, and Mr. J. Garratt, of the same place, attended as a deputation from the West Kent Bee-keepers' Association.

* N.B.—These were greatly diminished by the kind hospitality everywhere received.

The proceedings were opened by the Chairman, who briefly introduced to the meeting

The Rev. T. F. Scott, vicar of Hartlip, the promoter of the movement. He had, he stated, been for the last thirty years or more a cultivator, and he might say a successful cultivator, of bees, and he therefore thought he would be justified in asking his friends of this division of the county to come together and to follow the good example given to them in West Kent. He might also mention that another reason why he had taken this step was that at a meeting of the British Bee-keepers' Association at London the Baroness Burdett-Coutts requested him to do so. He might mention that the West Kent Association was merely the result of a parochial meeting at St. Mary Cray, but had now grown into very large dimensions. He believed that East Kent was in every way favourable for bee-culture. The present system of management enabled them to double the produce of the honey-bee, because it was not necessary to kill the insects. The system now in vogue was a humane one, and they might obtain from 50 lbs. to 100 lbs. of honey from one hive in a year—that was an exceptional year. The most he (the speaker) had taken was 49 lbs. and this year the highest was 30 lbs. But that was very good interest, seeing that a swarm of bees only cost about half-a-guinea. The Archbishop of Canterbury was the President of the West Kent Association, and it did not seem advisable to have two separate societies. He would therefore propose that a Bee-keepers' Association be formed for the eastern division of the county of Kent, but suggest that the two should be amalgamated.

The Bishop of Dover seconded the proposition, and expressed himself in favour of the amalgamation of the two associations.

Replying to Mr. Plumptre, the Rev. A. Welch said he and Mr. Garratt were appointed a deputation to ascertain the views of the meeting as to whether they were in favour of the formation of one association for the county. They were in fact rather afraid that it was intended to form another association, and, as they might imagine, their minds were much relieved at finding that they would not have a rival in the field. The speaker proceeded to explain the working of the West Kent Association, and said a county association might be worked, but still keeping the divisional sections.

The motion was then put and carried, it being also declared desirable that the two associations should be amalgamated.

Mr. Welch said he believed there were already twelve counties amalgamated with the Central Association.

The Rev. R. N. Gandy proposed, and the Rev. W. J. Monck seconded, that the following noblemen and gentlemen be asked to become Vice-Presidents of the Association: The Dean of Canterbury, the Bishop of Dover, Archdeacon Harrison, the Earl of Montcharles, the Earl Guildford, Lord Harris, Earl Sondes, Lord Hothfield, Sir Wyndham Knatchbull, the Rev. Sir Brook G. Bridges, Bart., Sir Walter James, Sir Moses Montefiore, E. L. Pemberton, Esq., M.P., Sir Edward Watkin, M.P., Akers Douglas, Esq., M.P., Major Dickson, M.P., C. K. Freshfield, Esq., M.P., Matthew Bell, Esq., C. J. Plumptre, Esq., and J. B. Plumptre, Esq. The list was adopted.

The Rev A. Welch said, gentlemen who joined the Society would thereby be in a position to benefit their poorer neighbours. At one of the shows in London there was a large amount of honey exhibited by cottagers, all of which was of the best quality. That showed that they did avail themselves of the better system of bee-keeping.

Mr. Garratt observed that the Association made it their prime object to offer prizes at shows for the best practical hive made at the lowest cost, in order to induce the labouring classes to adopt the best systems.

The Rev. F. F. Scott, in answer to a question said, he proposed to fix the terms of membership at a sum not less than 5*s.* per annum, and cottagers at the reduced fee of 2*s.* 6*d.*

A provisional committee for the purpose of arranging matters with the West Kent Association was formed. The Rev. F. F. Scott was elected hon. secretary *pro tem.*, and Captain Vallance, of Sittingbourne, hon. treasurer.

Mr. W. Mount proposed that the fee for cottagers be reduced to 1*s.*

The Rev. R. N. Gandy seconded, and the motion was carried unanimously.

ASSOCIATIONS AND HONORARY SECRETARIES.

The interesting paper read by the Hon. Sec. of the British Bee-keepers' Association at the last quarterly meeting, appears to me to have come at a most opportune time. To those who have for any considerable time been engaged in the practical work of developing County Bee-keeping Associations, the ideas and thoughts suggested by Mr. Peel's paper must be of great value. The writer may justly feel gratified in contemplating the active and vigorous growth of the Association to which he has contributed so largely; at the same time there is probably some alloy of anxiety mixed therewith, when the thought occurs to him that 'time, which tries all things,' has, as yet, only brought his test to bear in a slight degree. It is altogether unnecessary for me to enter into any discussion upon the practical benefits that result from the improved systems of bee management, those being already fully apparent, but my object in addressing you is to endeavour to aid, as far as my humble capacity permits, in strengthening the basis upon which the Association is built up.

The present condition of the Association appears to be comparable to that of a free-growing child, tended by fond parents, and well supplied with voluntary and admiring nurses, expatiating on his promising appearance and the happy future in store for him; but more or less present in the minds of all is the thought that he may be growing too fast for his strength, hence the necessity for carefully watching the development of his constitution.

Passing from simile, I would desire to say a few words on the subject of the constitution of County Bee-keeping Associations. The writer of the paper referred to before, very naturally sketched out a plan which would provide a very good organization, without involving any very great financial strain, but contemplated the use of voluntary machinery only, or, at most, the employment of an assistant secretary at a modest salary. This plan is, no doubt, a very suitable one on which to start an Association, but should success reward the efforts of the pioneer band, they must inevitably have to face the question of 'What next?' The history of the West Kent Association, with which I have been closely connected since its first inception, probably shares a common experience; but a short sketch of its career may not be out of place:—It was the outcome, or survival, of a small local society formed at St. Mary Cray in the autumn of 1878. At the end of the first year it had 45 subscribing members; 2nd year, 84; and at the present time 136, the subscriptions averaging about 7*s.* 6*d.* per member. The committee has held its meetings in the place of its birth, and has formed branches or district centres in two localities; managed by local honorary secretaries. It is now upon the eve of entering on a further extension of its working area by embracing the whole county of Kent; an influential body of East Kent Bee-keepers having proposed to ally themselves, and unite in forming an Association under the title of Kent Bee-keepers' Association.

During this time the management has devolved into a large degree, or I should perhaps more precisely say, the carrying out of the details has fallen, upon me, as Honorary Secretary, and, without any wish to magnify the services which I have rendered to the Association, I

would say that they have demanded much thought and time. This, of course, was to be expected from any one accepting the office, and I must fully admit that it has been a source of much pleasure, and of a considerable increase in knowledge on apiarian subjects. But, after three years' service, and a very careful consideration of the matter, I came to the conclusion that I could no longer continue to occupy the position that I had done, and therefore notified to the committee that at the termination of the present year I must relinquish the same. This placed the committee in a position of perfect freedom to discuss the question of the present status and the future prospects of the Association, and to determine in their own minds the degree of confidence which they felt in its stability and promise.

The difficulty of providing an experienced successor was fully admitted, and fears were expressed that the 'constitution' of the Association would receive a great shock by my retirement. The special or peculiar qualifications of the secretary of such an Association in the present position of bee knowledge made this result obvious. Being appealed to, as to whether I could suggest a course or recommend a successor, I could only answer that I had no means of solving the matter, thus throwing upon the committee the solution of perhaps the most important question that had occupied their attention. And this I conceive to be a question that all County Associations must deal with, as upon the conclusions arrived at will depend the permanence and continuity of the bee-keeping movements. The discussion which took place narrowed itself into the issue as to whether the movement should be permitted to collapse (this result being apprehended), or whether the secretary should be requested to retain the office on a professional footing, and the final decision was entirely in favour of the latter.

Although the matter involves personal interests, my belief in the necessity of such a step in the interest of the Association generally increases the pleasure with which I regard that decision. I do not pretend to say that the solution thus arrived at is the only practical one; in all cases, as the circumstances of the different County Associations may vary considerably; but I have been impelled to state my views and experiences, in the hope of being able to contribute something whereon the lines of future progress may be laid.

Before I conclude I would take the opportunity of expressing the pleasure with which I listened to Mr. Peel's most interesting and suggestive paper, every line of which bore the impress of his kindly nature.

Apologising for the length to which I have extended my observations, and trusting that you will be able to insert my letter in your valuable *Journal*.—JESSE GARRATT, *Hockendon, Kent.*

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

This Association is being entered upon by the residents in Norfolk with great warmth and zeal. There are already one hundred persons enrolled as members, and it is hoped that as many more will join the Association in the course of the next two or three months. Mr. Barge, of Great Yarmouth, is working very hard in his district, and undertaking his charge very methodically. The Rev. J. L. Sisson, the most accomplished bee-keeper in the county, is doing all he can by letter-writing and otherwise, to diffuse a knowledge of bee-keeping on humane and modern principles. We feel sure that he has done much good to the cause already, for there are signs of an increasing desire to know more about the treatment of bees on a better system. Books on bee-keeping are being bought up in Norwich, and names come in most unexpectedly to be put down as subscribers to the society. Mr. Littleboy and Mr. Back, and the Rev. J. H. Payne, are giving valuable assistance in the formation of the Association in and about the neighbourhood of Norwich. The Rev. H. R. Peel having most kindly consented to come down into Norfolk and give addresses, there will be grand inaugural meetings both at Yarmouth and Norwich on November 30th and December 1st. At Norwich J. J. Coleman, Esq., M.P. for Norwich, and R. H. Mason, Esq., Necton Hall, will take the chair at an afternoon and evening meeting respectively. The Earl of Leicester (the Lord Lieutenant of the county) has consented to become Patron, and the Marchioness of Lothian President, of the Association. Both the Bishop of Norwich and the Dean have become members of the Association.

SUSSEX BEE-KEEPERS' ASSOCIATION.

You will be glad to hear that there is a good prospect of an Association being formed for Sussex. I have been in communication with, and have seen a great number of persons interested more or less in bee-keeping, and am pleased to say that the Earl of Chichester (Lord Lieutenant of the county) has consented to be the President. The Bishop of Chichester, Earl Egmont, Earl de la Warr, Right Hon. the Speaker, and Sir Henry Fletcher, M.P., have consented to be Vice-Presidents. I have also a list of others who will aid on the Provisional Committee, and as soon as we have sufficient names down, we intend to call a meeting for the purpose of forming the Association, and electing a working committee, and the officers. I have received the greatest encouragement, and I should be glad if any one in the county, taking an interest in the formation of the Association, will communicate with me.—T. W. COWAN, *Comptons Lea, Horsham, Novemb. r* 23, 1881.

CORNWALL BEE-KEEPERS' ASSOCIATION.

A public meeting was held, on Tuesday, Nov. 22nd, at the Town Hall, Truro, for the purpose of forming a Bee-keepers' Association for Cornwall, the Chair was occupied by the Hon. and Rev. J. T. Boscawen, and there were also present the Rev. W. Rogers (Mawnan), Rev. A. H. Malan (Perranarworthal), Rev. C. R. Sowell (St. Gorran), Rev. J. Symonds (Baldhu), Mrs. Hockin (Flushing), Messrs. J. S. Jago (Mevagissey), W. B. Baker (Tredorwin), J. W. Wilkinson (Perranarworthal), A. P. Nix, T. R. Polwhele, G. Dixon, H. James, G. H. Chilcott, J. Hendy, J. Estlick, and C. Kent (Truro), &c.

Mr. Kent, the Hon. Sec., reported that a preliminary meeting was held at Truro on Oct. 11th, at which it was decided that steps should be taken to form an Association for Cornwall, and that 2*l.* 12*s.* 6*d.* was subscribed towards the preliminary expenses. He had sent out 400 circulars soliciting subscribers towards the Association, and had received thirty-seven names of ladies and gentlemen ready to join the movement, including Sir John St. Aubyn, M.P., and the Hon. T. C. Agar-Robartes, M.P., and that there remained a liability of only 10*s.* 6*d.* towards the expenses incurred in these preliminary proceedings.

Letters regretting inability to attend the meeting were read from the Rev. Stanhope Rashleigh (St. Wenn, Bodmin), and Mr. A. C. Willyams (Truro).

The following rules were then adopted:—

1. That this Association be called the 'Cornwall Bee-keepers' Association.'

2. That the Officers shall consist of a President, Vice-Presidents, Hon. Treasurer, Hon. Sec., and a Committee, not exceeding twenty-four members of the Association, the whole of whom shall hold office for one year, and be eligible for re-election.

3. The management of the Association be vested in the Committee, of which the President, Vice-President,

Treasurer, and Secretary, shall be *ex officio* members. Three to form a quorum.

4. The minimum annual subscription of members shall be 5s. (excepting for cottagers, who will be admitted on payment of 1s. per annum), payable on the 1st January in each year.

5. The Committee shall hold an annual exhibition of bees, honey, and appliances, together with a honey fair, at such times and places as they may deem most suitable for the interests of the Association, and as far as the funds will permit they shall arrange lectures and meetings, circulate the suitable books, journals, and pamphlets, and afford opportunities for the disposal of bee produce.

6. A general meeting shall be held as early in the year as possible, when the Officers for the ensuing year shall be elected, and questions of government discussed and resolved upon. A special meeting may be called by the Acting Committee at any time, and shall be so called by the Secretary within fourteen days of the receipt of a requisition signed by any ten members of the Association, stating the nature of the business for which the general meeting is to be called.

7. That any vacancy in the Committee that may occur during the interval of the annual meetings held for the election of Officers may be filled up by the Committee.

8. That the Association be regularly affiliated to the British Bee-keepers' Association, and that the Rev. H. R. Peel be elected an honorary member for life.

On the motion of the Chairman, seconded by Mr. T. R. Polwhele, it was decided that the Lord Lieutenant of the county, the Right Hon. the Earl of Mount Edgcumbe, be invited to become President.

Sir John St. Aubyn, M.P., the Hon. T. C. Agar-Robartes, M.P., and the Hon. and Rev. J. T. Boscawen, were unanimously elected Vice-Presidents, Mr. A. P. Nix (Truro), Hon. Treasurer, Mr. C. Kent, *Royal Cornwall Gazette* (Truro), Hon. Sec., and the following as the Committee:—Revs. W. Rogers, C. R. Sowell, A. H. Malan, R. J. Baker, and Stanhope Rashleigh, Mrs. Hockin, Messrs. T. R. Polwhele, J. S. Jago, W. Prockter, W. K. Baker, J. Branwell, Junr., J. W. Wilkinson, J. Hendy, G. Dixon, and G. H. Chilcott, the members to be completed at a general meeting to be held at Truro in January.

The Hon. Sec. said he had been in correspondence with the Rev. H. R. Peel, who had rendered the utmost assistance in organizing the Association, and making suggestions as to its government. He also reported that Mr. Peel had offered on behalf of the British Bee-keepers' Association to send a lecturer down to Cornwall provided this Association would thoroughly advertise the meetings and make them free to all. This announcement was received with applause, but it was thought that the matter had better stand over till the new year.

Mr. W. K. Baker thought the Association ought to make some acknowledgment of the assistance rendered by Mr. Peel, and proposed that he be elected an hon. member of the Association for life. This was seconded and carried unanimously.

Votes of thanks to the Chairman for presiding at the meeting, to Mr. Kent for the trouble he had taken in organizing the Association, and to the Mayor for the use of the hall, terminated the proceedings.

LOUTH SHOW, LINCOLNSHIRE.

REPORT OF THE JUDGES IN CLASSES 21, 22, 23, 24, 25, 26, 27, 28, AND 29.

In Class 21 (five entries) no new idea was shown, and the judges had only to decide the prizes as between one and the other of the exhibits. Class 22 (five entries).—The same may be said of the exhibits herein. The generality of the extractors are very cumbersome, and if some improvement were made in the portability of the extractor, to enable it to be readily taken round to apiaries at a distance from each other, an article answering this requisite must receive encouragement. Classes 23 and 24 (seven entries).—The exhibits in these classes showed but little merit, except the article to which the first prize was awarded in Class 24. The safe transit of honey in the saleable form it is now produced is of paramount importance. Class 25.—There were two entries in this class, both showing all manner of bee appliances, many of which are now only matters of curiosity, as their usefulness has long ago passed away. Still, a large collection of these appliances will always prove interesting and instructive. Class 26 (ten entries).—There were several novelties, and the one to which the first prize was awarded is a very useful article, enabling foundation comb to be firmly fixed to a bar or any part of the hive without melting the wax or making a slit or opening in the bar itself. The operation is very simple, and when once seen is easy of imitation; altogether a good class. Classes 27, 28, and 29, call for no special remark, except that the exhibitions of the diagrams in Class 28, and the bee plants in Class 29, must always prove instructive, and deserve much more especial attention and study than can be given to them at an exhibition.—J. G. Desborough, G. Brett, A. P. Russell, J. Bolton.

PROPOSED BEE-KEEPERS' ASSOCIATION FOR DERBYSHIRE.

A movement is being made in Derbyshire to establish a Bee-keepers' Association for that county. May I ask all those that are willing to interest themselves in the matter to forward their names and addresses to H. V. Edwards, Esq., Yew Cottage, Ockbrook, Derby?—H. R. Peel, *Abbot's Hill, Hemel Hempstead.*

SOMERSETSHIRE—A SECRETARY WANTED.

The bee-keepers of Somerset number several hundreds, scattered all over the county, with here and there a good group, living close enough to act in concert. Amongst them, moreover, are many enthusiasts, and not a few whose names are well known in connexion with apiculture. Notwithstanding all these advantages, they have at present no county association. The West of England Apiarian Society, which had its head-quarters at Weston-super-Mare, and which made such a show a few years since, has practically ceased to exist, although a very fair exhibition was held in connexion therewith as recently as last August. The fact is, Mr. A. L. Perrett, of Queen's Villa, Weston, who acted as secretary, treasurer, and committee (and did all the work admirably, too), is about to leave the neighbourhood, and cannot therefore continue the direction of affairs. Who will come to the rescue? It is a fine field, and could be easily managed by any gentleman who has his heart in the work and a little time to spare. The county affords splendid pasturage, with its rich moorlands, grand ranges of heather-clad hills, thousands of orchards, and widely varied systems of cropping. Moreover, within the borders of the shire, numerous flower shows and agricultural exhibitions are annually held, at most of which something could be done to bring the pleasures and profits of bee-keeping under the notice of the uninitiated. The Somersetshire gentry, too, subscribe liberally to anything calculated to raise the status of their poorer neighbours. In short, a good working committee and a zealous secretary would soon place bee-keeping in its proper position throughout the county. Surely the men of Somerset will not be content to remain without organization now that Dorset and Wilts, Devon and Cornwall, are in working order. Unfortunately, some of those who are most anxious to see an association in operation cannot spare the time to set it going: but

there must be some one able and willing to do the work when the want is thus publicly announced? At Taunton, Weston, Somerton, and other places, prizes have been offered for honey for years past, and considerable progress has been made in the method of placing it upon the market. Still, much remains to be done; and there is ample work for a large county association with sub-committees at Bath, Taunton, and Weston-super-Mare. Scores of subscribers could at once be obtained in each district. Many bee-keepers at Somerton are ready to organize at once, and are anxious to have the Bee-Tent at their next flower show. Our esteemed and enthusiastic honorary secretary, the Rev. H. R. Peel, has been doing his utmost to set things in motion in the fair 'Summerland' of the Saxons. If things cannot be put 'shipshape' within reasonable time, it would not be a bad plan to send one of the tents to the flower shows at Bath and Taunton next summer, to arouse local interest, and to give direction to the comparatively dormant interest. —C. T.

BEE EXHIBITION IN CONNEXION WITH THE LINCOLNSHIRE AGRICULTURAL SOCIETY.

At the November Meeting of the Council of the Lincolnshire Agricultural Society, held at Lincoln on the 11th ult. (the Hon. M. E. G. Finch-Hatton presiding), the question of holding a Bee Exhibition in the Show grounds at the Annual Meeting, to be held at Sleaford in July next (introduced by J. Martin, Esq., of Wainfleet), was considered, and power was given to the Prize List Committee to make arrangements with the Lincolnshire Bee-keepers' Association for an Exhibition.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION. PROPOSED BEE LIBRARY.

To Members and Non-Members, Brother Bee-keepers, —I am desirous of establishing a library for the benefit of members of the Lincolnshire Bee-keepers' Association. Allow me to ask if you will kindly aid me by forwarding any bee literature you can spare. Our good friend, Mr. Abbott, has kindly promised to present a copy of his *Journal* monthly. Mr. Neighbour's and Mr. Cowan's works are also promised: and I shall myself be pleased to contribute some twenty or so volumes (ancient and modern works) towards the object.—R. R. Godfrey, *Hon. Sec., L. B. K. A.*

ONTARIO BEE-KEEPERS' ASSOCIATION AND THE BARONESS BURDETT-COUTTS.

Abbot's Hill, Hemel Hempstead, November 8th, 1881. —'I send you a copy of a letter which our President has received from the Secretary of the Ontario Bee-keepers' Association, and which may interest the readers of the *Bee Journal*.—Herbert R. Peel.'

'*The Baroness Burdett-Coutts, London, England.*—The bee-keepers of Ontario (Canada) have noted with pleasure the interest you have manifested in promoting practical and scientific bee-keeping among the working classes of Great Britain. As a recognition of your noble efforts to foster and encourage an industry that is yet in its infancy, and one which is calculated to bring pleasure and profit to the deserving poor of our Fatherland, the Ontario Bee-keepers' Association, by resolution, made you an honorary member of the Association while in session in the City of Toronto on the 17th of September last. Pursuant to that resolution, I have the honour to enclose your membership ticket and a copy of the Constitution and Bye-laws. You will pardon me if I have not designated you aright, and kindly take the will for the deed.—I have the honour to be your obedient humble servant, R. McKnight, *Secretary and Treasurer, Office of the Ontario Bee-keepers' Association, Owen Sound, October 24th*, 1881.'

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

FORMATION OF COUNTY ASSOCIATIONS.

From numerous letters which I have received lately, there seems to be a misapprehension in the minds of many bee-keepers as to the manner in which County Bee-keepers' Associations can be formed. Many gentlemen write to me expressing surprise that no association has been formed for the particular county in which they happen to be residing; but they must understand that the British Bee-keepers' Association requires some invitation or some request for assistance before it can intervene in the formation of a county association. If any one wishes to form an association in his own county, he must at least give himself the trouble to put a notice to that effect in his county papers, and to collect sufficient bee-keepers together to attend a preliminary meeting before we can assist him. The time may come when the British Association may feel itself sufficiently strong to 'invade' the counties which as yet show no signs of activity; but, for the present at all events, we must help those who are willing to help themselves, and these, I am glad to say, are sufficiently numerous to employ all our time, energies, and funds. The success which has attended the Wiltshire Association, formed in September last, and numbering already upwards of 100 members, shows what can be done by local effort, supplemented by aid from the Central Organization. —Herbert R. Peel, *Hon. Sec., Abbot's Hill, Hemel Hempstead, Herts, November 21st*, 1881.

CYPRIAN BEES.—A HONEY PRESSER.

We have had a very bad season for the bees. I believe it has been the worst on record. We had only one week of good weather about the end of May, and two or three days, the time the heather was in bloom. One of the Cyprian queens I got from you was very prolific; it swarmed seven times and bred about sixty queens. I sold six of the swarms, and gave two or three of the queens away The queens were flying about in all directions. One day my wife was out in the garden pulling berries, and a queen (a Cyprian) lighted on her hat, and when she came into the house it flew off to the window. I put the same queen into one of my hives and she did very well. She was a very fine one. They are very good honey-gatherers; but at the same time they are very savage little fellows, although I only got one sting with them. The honey was very thick this year; it could not be got out of the combs at all with my extractor. It is one of Mr. Steel's improved ones. So I bought

a honey-presser from Mr. Watt Smith, engineer, of Carluke, who, I suppose, was the inventor of it. He is a very ingenious worker. The honey is put into a small brass cylinder, full of holes in the sides of it, and pressed out with a rammer and screw till the combs are quite dry. It is a first-rate invention. I have no doubt but five or six pounds more of good honey can be got with it than any other way that ever I tried; so I would advise every bee-keeper to get one to press out heather honey, which cannot be got out with the extractor.—WILLIAM RUSSELL, *Pettinain Village, N.B., November 25.*

CYPRIAN BEES.

. . . . . I am sorry that you do not like the Cyprian bees, especially as our Hertfordshire expert is just going over to Cyprus to bring back queens. I kept them for a year in an observatory hive in my study, and never had any unpleasantness with them, though they were often flying about in the room. I have never had such a prolific queen before. I have just sent an order to Mr. Blow for five Cyprian queens. I hope your readers will study the Rev. A. Salisbury's article on Cyprian Bees in the *American Bee Journal* for October, page 33. He appears to be well pleased with them. I do not think that Americans generally have had time enough to form an opinion about them.—HERBERT R. PEEL, *Abbot's Hill, Herts, November 24th*, 1881.

TIN DIVIDERS BEST.

Having used dividers of thin tin this year with success, I can confidently recommend that material. I think it is better than either wood or glass, as wood must be as thick as glass, or nearly so, to insure keeping straight. Then there is a lot of extra work for the bees in stopping up with propolis the spaces where the dividers do not go up to the top of the sections. On the other hand, the tin being so very thin, the sections, when wedged up, fit so closely that propolising is reduced to a minimum. As regards its being colder, I think that is altogether beside the question, as when there is a good honey yield, the hive being full of bees, and the supers covered up well with old rugs or blankets to keep the heat from escaping, the tin would be no disadvantage on that score. There is also little or no liability for the bees to attach their combs to tin dividers, as is so often the case with wood.—A WARWICKSHIRE BEE-KEEPER, *Weston, Leamington, November 16th*, 1881.

DRAUGHT-PREVENTERS.

I beg to suggest that the draught-preventers be made one inch longer than the opening of the hive; the shutters of the hive withdrawn; the draught-preventers placed in their place; the shutters reversed the straight end, pushed up to it, and all will be firm together; but the inside groove must be as far from the edge as the shutters are thick. If the draught-preventer is placed before the shutters, great care must be taken, or the hole in the shutters will not be opposite to the hole of the preventer.

If you think the suggestions are worth a space in the *Journal*, you are at liberty to publish them. —J. R. T., *Bainton Heath, Stamford.*

GROCERS' HONEY.

A correspondent writes (says *The Grocer*, a weekly journal devoted to the interests of the grocery business) :—

'I am sorry to hear that English honey is being gradually forced out of the market by its Australian rival, and that what was once a notable industry is becoming merely an amateur accomplishment. It seems that since bees can now be persuaded to make their honey in boxes they are used in Australia largely as packers of their own combs, their very tidiness thus fitting them to supply the export trade. I forget how many hundreds of pounds of their honey is at present exposed in the London shop-windows, but I hear that in a southern shire famous for the production of bacon, some local ladies are going to take a leaf out of the book adopted by Lady Bective in the case of woollens, and to patronise Wiltshire honey and promote its manufacture. Lectures on the subject, to be delivered in the principal towns, is a part of the programme which aims at reviving a once popular and successful industry, and supplying the farmer, or rather his wife, with this much-needed addition to the ordinary sources of income. A curious novelty has also appeared in shops. Rose honey has the colour and the fragrance of the flowers which the producing bees feed upon, but the taste is sickly and the sweetness too dead.'

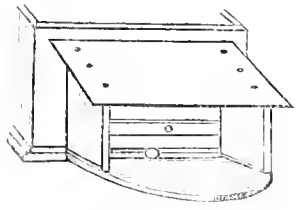
[It seems to us that the 'Correspondent,' who is so 'sorry' and all that, has become, like grocers' things are generally, considerably mixed, and needs a little retirement—to Earlswood, Hanwell, or Colney Hatch. It is somewhat humiliating to bee-keepers, members of associations, and others interesting themselves in the promotion of bee-culture, to find that such trash passes current for truth, and is unnoted in the leading organ of the grocery trade, whose editors ought at least to know the condition of the market in respect of an article in the sale of which grocers have been for years, and still are, so deeply concerned; otherwise it deserves only ridicule—unless, as a demon of suspicion suggests, it is the beginning of a deliberate trade trick or swindle. Describing the English honey to be found in shop-windows as Australian, may be but the forerunner of an importation that will also be described as from that far-off land, come whence it may; and grocers, and the public generally, having been charged with the idea (for the above clipping has gone the round of the papers), the 'Correspondent' may find a market for a lot of trash and laugh in his sleeve at his dupes.—ED.]

WIDE AND OPEN-ENDED FRAMES.

Your correspondent in November *Bee Journal* inquires about wide and narrow-ended frames, the wide being propolised if used during summer, the narrow giving trouble of putting half-inch pieces between during winter. I beg to suggest part narrow and part wide, placed alternately. In summer there would then be $\frac{1}{4}$ in. space between. If the narrow ones were withdrawn, during winter the space would be filled with a little care, if the last time before placing in winter quarters the narrow ones containing brood were placed at the edges of the brood-nest. They might be withdrawn later without destroying any brood.—J. R. T.

SNOW SHUTTERS FOR HIVES.

I have been making snow shutters to my new hives this season, which, if you think worth anything, or interesting to the readers of the *Journal*, I shall feel highly favoured by your notice. I make the two sides of porch square and rebated on their inner front sides to half the thickness of the



wood. The shutter then fits into the rebate, and with a button on each side of porch, is firmly fixed or detached in a moment. The sides of the porch come down only to within a quarter inch of alighting-board, so that with shutter in position, the bees are not actually confined to the hive, which is effectually shaded and protected.—W. Walker, Jun., *Welcombe House, North Devon.*

ABBOTT'S ROBBER TRAP.

I have to thank you for describing your 'Robber Trap' in the August number of the *British Bee Journal*. I had a cottager's condemned stock attacked and destroyed in three days, and they began at another, and all my efforts to stop the robbing was unavailing until I used the Robber Trap, which entirely prevented it through my apiary. A friend of mine has derived a similar benefit. It is simply invaluable, as I should doubtless have lost a third of cottager's condemned bees.—R. Thorpe, *Evedon, Lincolnshire.*

BEE-KEEPING IN INDIA.

I shall be much obliged if any of your numerous readers would give me any information on the heading of this letter. Has bee-farming ever been attempted in India, and if so, with what results, and in what parts of India? I have been many years in India, and have often seen the wild bees and combs, and tasted the honey out of the jungles of the Western Ghâts, and in other parts, even in the midst of the hot weather; but I have never heard of anyone keeping bees out there. At that time, I am sorry to say, I knew nothing at all about bees, and took no interest in them, barring eating the honey, which was delicious; but this year, whilst at home, I have been much interested in the matter, and the astonishing advances that have been made of late years in the art of bee-keeping; and when I go out again I shall most certainly like to set up, if possible, an apiary in India, and try to induce the natives to take to it, as I consider they would do so readily if it was shown to be profitable and feasible; and, moreover, many of them are well fitted by nature to succeed in it. I presume English bees-wax would melt in the hot weather of the plains of India, where the temperature in an outhouse would be considerably over 109 deg. Fahrenheit; but I fancy it would answer on the hills, as, for instance, the Neilgherries, Mahableshwur, and hundreds of other places where there is a delicious temperate climate all the year round. Even in the plains the temperature could be kept down to between 80 deg. and 90 deg. by means of wet khuskhus latties and punkahs; and as labour is very cheap in the glorious East, it would, perhaps, pay to keep a couple of punkah-walas during the hot weather months if the apiary was a large one. At any rate, if the English wax would not do, I suppose the wax the wild bees out there make would. In the hot weather, in some places, flowers would be scarce; but, then, look at the glorious masses of flowers and luxurious vegetation during the rains and cold weather. Perhaps there are others beside myself interested in this matter who would appreciate any remarks about it from you or any of your subscribers.—Chas. F. Fuller, *Captain R.E.*

NEW ZEALAND FLAX—LIGURIANS IN NEW ZEALAND.

I have not the number at hand, but I think that it was in that for July, that you expressed a desire to possess some seed of the New Zealand flax. It gives me much pleasure to be of service to you. I enclose a packet of the seed, which I received from a trustworthy seedsman. Your offer to return a parcel of seed of the Limnanthes Douglasii I accept, although I should have been glad to forward the flax-seed even if there had not been a *quid pro quo* attached to your request. It will be an experiment to see in how far this plant, so highly recommended by you, will succeed in this climate. If you could give a few hints regarding its culture, you would probably benefit many who desire to raise the plants from seed. I have now at my ground at Homebush, about eight miles from Sydney, two colonies of Italian bees, imported by me at much trouble and expense, from Mr. A. H. Newman, of Chicago. They reached me after the bees had been incarcerated for fully six weeks, including five or six days on the railway, and four weeks at sea. After this treatment they arrived here on the 2nd of July, at the commencement of our winter. You will see, therefore, that there were many difficulties in the way of success. The bees arrived in a very weakened condition. I soon transferred them to clean Langstroth hives, after removing fully a quart of dead bees from each hive. Our winters are always mild enough for bees to continue flying and honey-gathering; and as this winter has proved no exception to the rule, there are plenty of honey and pollen-producing flowers in bloom. About four weeks ago I found a patch of brood in the centre of a comb in one of the Italian hives. The young bees are hatching out; and I see a manifest improvement in the number of inhabitants. I have, therefore, fair reason to hope for ultimate success in establishing the Italians in

these parts. I continue to read your *Journal* with much interest. I am often astonished at the amount of information to be found in the *Bee Journals*, and, although I have my favourites, I find most valuable matter in one and all of those which I take.—S. MACDONNELL.

[Limnanthes seed need only be thrown thinly upon the ground in early autumn and raked in; it flowers profusely and seeds itself. We in turn should have been glad of a few hints on the cultivation of the flax.—ED.

ENCOURAGING REPORT FROM A WILTSHIRE COTTAGER.

I see, by the accounts given in the *British Bee Journal*, that some bee-keepers have not had a good honey harvest. I am pleased to tell you I have had a good harvest. I wintered eleven stocks last winter. I had over five hundredweight of super honey. I have been told that a cottager ought to pay his rent out of his bees. I thought that could not be done; but now I have proved it can be done: I pay 5*l.* a-year for my cottage, and I have cleared 30*l.* out of my bees this summer. I started five years ago with one swarm in a straw skep, and now I have thirteen stocks in bar-frame hives, and four in straw skeps. I have enclosed post-office order for the *Bee Journal*.—T. OWEN, No. 7 SHAFT, *Corsham, Wilts, November* 21, 1881.

COVERING FOR SKEPS.

Will you kindly say in the *B. B. Journal* what you think of this? I cover my straw skeps with cement and hair mortar, and just leave a small part on the top for ventilation. I have tried it one year, and I think it is good for three things—it keeps the bees warm in winter, and from the burning rays of the sun in summer; and, lastly, it keeps the skeps almost for ever. I think it would be good for cottagers like myself for cheapness and durability.—C. POLLARD, *Houghley*.

[Cement-covered hives are impervious, and in cold weather the moist vapours from the bees will condense under it, and the straw will get wet and rotten. It is, further, against the use of cement that in attempting to drive bees from hives encased in it, it is liable to breakage, and in summer, if exposed to the sun, is liable (as we think) to become too hot. We are not in favour of any covering that will not permit the vapours of a hive to escape.—ED.]

QUILT *v.* CROWN-BOARD.

In Abbott's catalogue of bee-hives, &c., for 1881, speaking of the Standard hive No. A, it is claimed as an improvement (see p. 5, par. 2),—'The abolishment of the space which existed between the frames and their covering, and that great improvement the quilt, first introduced by us into England in lieu of the abominable crown or honey board.'

Will you kindly inform me in next month's issue of your *Journal*, why the abolishment of the space between the frames and their covering is such an advantage?

I am quite a beginner at bee-keeping, and most probably manipulate them wrongly; but I invariably find the quilt I use on my bar-frame hive firmly propolized in a day or two, down to the tops of the frames, so much so, that when I remove the quilt to look at a frame, I jar the whole hive very much, and cause great commotion amongst the bees; besides, I generally find some bees killed under the quilt. The quilt is nice and warm, and just the thing for wintering bees, but for ordinary manipulation, such as feeding, using supers, &c., as far as I can see, it would be advantageous to have a crown-board with space between the same and the tops of the frames.

Will you also please inform me how I am to use a super (and what size should this be) with one of your Combination Irish hives ('Woodbury'), length 20 inches? Is the floor-board of the super to rest on the tops of the frames, or is the quilt to be placed between the two?

Lastly, I shall be much obliged by your telling me what the groove along the centre of the under edge of the ends and side of the roof of the Combination hive above alluded to, is intended for.—CHAS. F. FULLER, Capt. R. E., *Fairlawn, Fylton, near Bristol.*

P.S.—What is the best way of taking off the quilt when firmly propolised to the tops of the frames? No matter how softly I try to do it, I shake the whole hive.

[The advantages gained by the abolishment of the crown-board and the space between it and the frames of comb, and the adoption of a close-fitting quilt, are increased comfort to the bees, particularly in winter, and increased facility for manipulation. The comfort of the bees is, to our mind, of the first importance when profit is a consideration: and next to that, convenience for the bee-keeper, and at all our efforts at hive-construction, except for experimental purposes, these two principles have been adhered to in their order. The original inventors of the frame-hive, impressed with the convenience of the mobility of the combs, doubtless, though it would be convenient also to the bees if facilities were provided by which the bees could have free passage over and around them, added to which, a crown-board detached from the bee nest would be handy for removal when examination became desirable. The English inventor, the late Mr. T. Woodbury, whose name will ever be remembered with the deepest respect as the greatest bee-master of the time, evidently considered bee convenience important, and in the hives bearing his name, left a space of three eighths of an inch between the frame tops and the crown-board, but the bees always protested against it, and built comb up to the latter, causing terrible trouble when it became necessary to investigate the condition of the hive; and though repeatedly cleared away they repeated the offence (?), unless it was too late in the autumn for them to do so. Had our correspondent witnessed the difficulty of removing a crown-board under the circumstances described, he would not wonder at our describing it as abominable. With three eighths of an inch of comb, filled generally with honey, and with the board itself glued down with propolis, it was no easy task to open the hive for any purpose; and when, by the use of a strong screwdriver, and sometimes a spade, the crown-board was wrenched from its bedding, the picture it presented was anything but assuring. The surface of the boards and the tops of the frames were covered with bleeding honey, which the bees would swarm upon in thousands, and robbing would often result; and after the examination it was almost impossible to replace the crown-board without crushing many bees, unless the precaution were taken to scrape off

the broken and bleeding comb. The wrench given to prise up the crown-board often brought with it several of the frames of comb, which was a source of danger to the queen, crushed many bees, and rendered the rest furious, making it no easy task to manipulate under the circumstances, and as a result the frame-hive system was not in favour as it now is. In wintering, the space between frames and crown-board is the source of inestimable mischief. Naturally the bees build from the top of the vessel on which they are located, and partly to the sides of the same, and the top space between each pair of combs thus becomes an inverted chamber from which heated air cannot escape, and over which there is no circulation: but with the open space above, the heat and vapours from the condensed bees easily find their way to the crown-board and disperse over the whole hive, and condensing in the cooler parts render the hive damp and the outer combs mouldy. The cooling effect of this condition naturally causes the bees to consume food largely in order to generate the heat necessary to life, and in times of protracted cold, when natural discharge of the fæces accumulated in the bodies of the bees is impossible, the stock will almost certainly become dysenteric and perish. There was an immense mortality of bees in America last winter through dysentery, and the bee-masters there attribute it to every imaginable cause but, as we believe, the right one, viz., the space above the frames which they believe to be essential because the bees in self-defence cluster there in severe weather, but, from our point of view, they only cluster there because the space above makes the combs cold and untenable. Dysentery used to be the winter scourge in England, but since the close-fitting quilt has been adopted in lieu of the crown-board, it is exceptional to find a case in a well-managed apiary.

As regards manipulation with the quilt, excepting the fact that the bees propolise it, as they do everything that is not perfectly close fitting, we have not a word to say against it, unless to complain that they are rather fond of biting holes in it. We have no difficulty in removing or replacing it, and seldom give offence to, or injure, a single bee. We remove all but the lowest stratum at once, then, raising one corner of the latter, proceed to remove it gently as one would a piece of sticking plaster. We pull it in the direction of the frames lengthwise, holding the hand low, and, to prevent the hive or frames moving, should the adhesion be great, we put the other hand on the exposed frame ends, and never have any trouble—well, 'hardly ever.' In replacing the first layer, we first rub out what propolis is hard enough to break away, and lay the square of sheeting or ticking, as the case may be, upon the frames and bees, it is not heavy enough to hurt one, but serves as a reminder to the bees to go down between the combs, which the majority quickly do; in a minute or less we feel along the frame tops to be sure every bee is out of danger, and if any are in the way a slight raising of the part above them with the point of a pin enables them to get away, and then we lay on the other folds of the quilt, and the business is done.

When supers are used it is best to place an adaptor between it and the frames, and to take away the quilt, so that the super can be removed without any comb attachments. It is difficult to say what size of super should be used on a hive, as it will depend on the strength of the stock of bees; we should use a small number of sections at first, and add to them as the bees showed inclination to adopt them.

The groove along the under side of the roof cover is intended to cause any rain that might drift there to drip away rather than soak under by capillary attraction.

The postscript being already replied to above, we would suggest that a firm stand and a firm hand are the only preventives of shaking—that we can warrant effective.—Ed.]

Echoes from the Hives.

Fonthill, Tisbury, Oct. 24.—Sparrows and Bees.—'With regard to the communications of "W. L. B." on p. 119, I can most distinctly state that sparrows will eat worker-bees, catching the bees as they come in heavily laden. I am always told that they must be drones that are caught, but this is most certainly a mistake.'—A. G. R.

Station Cottages, Huntingdon, November 23rd, 1881.—'I am pleased to learn that an Association is proposed for the Cambridgeshire bee-keepers. I wish it every success, and hope Huntingdonshire won't be left far behind. But as these two counties join each other and neither of them is very large, I think it would be a good thing for the two to unite. A strong association could then, no doubt, be formed, and the two counties would undoubtedly be mutually benefited. If you think such would be approved of, perhaps you will kindly give a hint in your next issue. I feel confident that an association would do a very great amount of good here, where bee-keeping, especially upon the modern system, is almost an unknown thing. This year has been the best and most encouraging one I have ever had in bee-keeping. I have been successful in every way. The season has really been everything that could be desired. I took over 50s. worth of comb honey from one hive, which is very encouraging, although the amount is but small in comparison with your "A. B.C." of last month. Sections nicely filled with white honeycomb, and glass jars with pure extracted honey, are quite a new thing here, and meet with a very ready sale. I am pleased to inform you that the comb foundation I had from you has all turned out satisfactory. Every sheet has produced the straightest comb possible. I could not have believed how quick and beautiful it is built out, had I not seen it. I intend in future to use neither old combs nor empty frames. I am quite sure that old combs are not worth saving. Your extractor is rightly named the "Little Wonder," and you are quite justified in saying it must be tried before it can be believed in. I only regret that I did not adopt it earlier.—A. Sharp.'

Grantham.—November Swarm.—'Sunday, November 13th, a real summer day, my bees as busy as in May. One stock actually threw off a small swarm about 2.30 p.m., as the bells of our old church were ringing for service. The bees were from a swarm I had from a vicarage near here in June last, and that had swarmed on a Sunday. They have thus given early proof of their being thoroughbred Sunday-swarmers. I watched and waited for the swarm settling down; but no, all was confusion. Twice they returned to the hive and came out again. It occurred to me the queen might have fallen on first coming out; and I made a search, when I discovered her decked with a red sash, which had been attached to her for exhibition purposes during the past season, but which I unfortunately had neglected to remove at the close; hence her being on the floor. I removed the sash and returned her to the hive, when the bees at once settled down, contented with a more than half-dead queen. Just before dusk I went to see how matters were, when I observed a large cluster of bees on the floor, near to the hive, quite benumbed. On looking them over I discovered my poor maimed queen, she having evidently crept out of the hive again and fallen, where her subjects had followed her, thereby risking their own lives rather than deserting their queen (a circumstance certainly exemplary). I took up the benumbed heap, carefully removed quilt, and returned them to the hive. On examination the following morning, I found the queen alive, but very feeble, and in the evening dead.'—R. R. Godfrey.

Weston, Leamington.—'Have got bees pretty well ready for winter now. Have put lumps of loaf sugar of about three pounds weight each on top of the frames of several stocks, which I think have not food sufficient to last them till February. Being short of run-honey, I last week extracted the whole of the honey from one stock, and gave the bees about 6 lbs. of syrup, and shall make them do with a good lump of sugar for what more they may require.'—A WARWICKSHIRE BEE-KEEPER.

Stingless Bees.—'I have no time to write, but there is a "stingless bee" in Australia. I have taken many hives. It builds in the gum-tree, "Eucalyptus," a small nest, and yields very delicate liquid honey. The bee is about the size of a house-fly. It is perfectly harmless, and is considered a delicacy by natives, who gobble both honey and bees.'—L. V.

Sense of Colour.—'I am anxious to see if you make any comments on Sir J. Lubbock's address to the British Association on the sense of colour that bees possess. I cannot but think that he over-estimates their power of sight. It is their wonderful sense of smell which seems to me almost invariably to guide them.* If the bees had once been to a drop of honey, I fancy their sense of smell would lead them to it again. Without any reference to the colour, I hope in the next *Journal* to see some remarks on the subject.'—A. E. R.

New Idea Frame.—'You may be glad to know that your "new idea" frame, which I only tried late in the season, has answered well with me. I think very large results might be obtained by using it. I think the winter "entrance," sketched on p. 117, a good idea, and shall try it with a slight alteration this winter.'

Natural Ligurianising.—'I fear I shall at length be forced to have Ligurians. By some wonderful accident my bees are now in some cases distinctly crossed with Ligurians. How this has happened I cannot think, as I do not know of any Ligurians within several miles of my apiary. My only reason for so persistently keeping my bees as pure "blacks" as I could was that they might be quiet to handle, and therefore have not introduced Ligurians' blood, as I might otherwise have done, as I particularly like having my bees tractable. It is almost impossible now to open the hive, which is most "crossed." The other day the bees came at my smoker as though it was nothing.'—ASHTON C. RADCLIFFE.

Many Eggs or Larvæ in Cells.—'I received a piece of comb a few weeks ago which had been taken out of a common square box. It contained four cells, with three eggs each, and five with two and two, with three grubs each a few days old, and two with two each the same age, and an egg newly deposited sticking on to one of the grubs. I examined the box and found plenty of room for the queen; even the comb that the piece was cut out of was empty. What could be the cause of it? It was very nice weather at the time, and a good quantity of honey coming at the time.'—T.

[The irregular distribution of the larvæ is due to the hive possessing a fertile worker in lieu of a queen. They often lay many eggs in single cells, sometimes as many as twenty. Had the piece of comb been left in the hive, the bees would have enlarged the cells and made room for their contents, which would have hatched out drones only.—ED.]

* We are of the same opinion, and have little faith in the conclusions arrived at. Sir John Lubbock once told the world that bees could not find some honey he had hid (in summer) amongst some flower-plants, ignoring the wonderful sense of smell which directed them to a better source of supply. Had Sir John known that, with honey in abundance in the fields, bees will not take the trouble to pick up spilt honey of their own previous gathering, he would not have misunderstood the hint the bees gave, that the honey he offered them was not so good as they could get in abundance from flowers in the fields.—ED.

Spiteful Neighbours.—'I heard the other day of a man, a few miles from here, and within a few hundred yards of a subscriber to the *B.B. Journal*, who is mad at the new style of bee-keeping, as he calls it, and blames his neighbour's bees for robbing his. He closed the mouth-holes of his own, and put out basinfulls of sweet water, and drowned his neighbour's bees. What should be done with a man like that? I warned my friend to watch him.'—T.

[We do not think the law can be put in force against the mean-spirited fellow who spitefully destroys his neighbour's bees; but he ought to be reminded that it is a game that two can play at, the fear of reprisals being more likely to deter him than any appeal that may be made to his feelings.—ED.]

Queries and Replies.

QUERY No. 428.—*Irregular Combs.*—Last August I transferred the brood combs of three skeps to a bar-frame hive and joined the bees, but, through improper fixing, all the combs are locked together, and five frames are immoveable. What I want to know is—(1) Shall I in spring remove dummy and gradually fill up with sheets of comb foundation and let them swarm naturally or let them swarm from the five frames as they are now? (2) If I adopt either course, shall I drive in twenty-one days after the issue of the first swarm, and how is it performed? My hive is of your Combination type. Had I known in time that straight nice combs were so easily produced from foundation, I should have avoided the mess and trouble, not to speak of the failure of transferring, a rather delicate job for a cottager who had never seen driving, uniting, transferring, or even a frame hive till I made one myself, and consequently one's hands are rather apt to tremble.—R. FILMER, *Ruckinge, Ashford.*

REPLY TO QUERY No. 428.—The best course will be to leave the bees where they are till the bees are strong in spring, and then lift out the five frames bodily, and, having separated them, tie the combs fairly into them, and in a day or two, when they have been made secure by the bees, frames of food may be gradually given. It is never necessary to drive bees from frame hives for transferring, because the whole contents can always be removed and the combs dealt with piecemeal.—ED.

QUERY No. 429.—*Glucose.*—What is it, and what are its nature and properties? Does it resemble honey in any way?—*Back Lebanon, Cupar Fife, N. B.*

REPLY TO QUERY No. 429.—Glucose is identical, chemically, with grape sugar, of which honey is largely comprised; it is colourless and almost tasteless, and is used largely in America in the adulteration of honey, which it very much resembles.—ED.

QUERY No. 430.—*Green Honey.*—Some honey has been sent me from Essex, which is quite of a greenish colour, the taste is excellent. Can you account for this colour?—*Breconshire.*

REPLY TO QUERY No. 430.—We are unable to assign a cause for peculiarity of tint in the honey. Perhaps some of our readers may help to explain it.—ED.

QUERY No. 431.—*Bees and Snow.*—I shall be much obliged if you will let me know in the next number of the *British Bee Journal* how I can prevent my bees coming out when there is snow on the ground. I have tried everything I can think of, shading them and putting small tunnels at the flight-hole; but it is no use. We often get deep snow up here, and sometimes when it is

on the ground the thermometer will go up to 40 or 50 degrees, and out they come to die on the snow, and as a good deep fall of snow takes some time to melt even at that temperature the loss of bees is terrible. I have tried shutting them up by nailing perforated zinc over the holes, and find that doing so nearly always produces dysentery; when they find they can't get out they get excited and gorge themselves with honey, and, of course, dysentery is the result. If you can suggest anything I shall feel much obliged.—W. Conway Preston, *Muir of Ord, N. B.*

Reply to Query No. 431.—As neither shading nor tunnelling appears to be of any use we would try additional ventilation, and total darkness either by removing the hives to a dark room or cellar, or by forming an enclosed ante-room, or lobby in front of the entrance as suggested on another page.—Ed.

Query No. 432.—*Drone-laying Queens.*—I have a yellow queen, hatched in July last. She laid some worker-eggs in August, which proved to be hybrids; but during the month of October she laid nothing but drone-eggs, which the bees turned out in all stages of intercellular life. Say, is she likely to return to her normal duties of laying worker-eggs in the spring?—J. D., *Downpatrick, Nov.* 3.

Reply to Query No. 432.—The information given is barely sufficient to warrant a direct reply: therefore we say, if the queen that laid worker-eggs in August laid drone-eggs in worker-cells in October, we should have little hope of her resuming worker duty satisfactorily in future. We should consider she had been injured, and had become useless. If, again, she from some unexplained cause laid the drone-eggs in drone-cells, we should hope that she would still be serviceable, and would retain her, though such ovipositing would savour of freakishness.—Ed.

Query No. 433.—(1) *Abbott Frames.*—What are the distinctive advantages of your make of Woodbury frames? (2) *Entrances.*—Which do you recommend? entrances hollowed out of floor-board, or cut in side of hive—and why? (3) *Arrangement of Frames.*—Do you prefer to arrange frames at right angles or parallel to entrance? (4) *Flour Cake for Winter.*—Will bees live through winter on flour-cake alone, without sealed stores? If so, about how much will be required? (5) *Throwing out Queens.*—On two recent occasions I united stocks, both of which I believed to have queens. Yet in neither instance has a dead queen been cast out of the hive since. How can this be? The dates on which I united were October 18th and 26th.

Reply to Query No. 433.—1. We prefer our pattern of frame with widened ends, because they are self-regulating as to distance from each other; because they keep the bees within the hive, instead of allowing them to ramble, and the heat of the hive to escape as is the case where distance-pins are used, and because the projecting ends are convenient for handling. 2. We prefer entrances cut out of the hive, because they leave the floor-board level, permit of its being easily cleared of dead bees and *débris* from the outside, and because they permit of the easy adjustment of entrance-slides. 3. We prefer frames parallel to the entrance of a hive for reasons given *ad nauseam* in the *Journal*. 4. We think flour-cake for winter food a grave mistake, as it is almost certain to induce breeding abnormally (see p. 104, 'Sufficiency of Food'), and lead to a diseased condition. 5. The probability is that the bees carried the queens out of the hive during the day and dropped them at a distance.—Ed.

Query No. 434.—*The Bingham Smoker.*—1. In using this smoker, would you kindly inform me if charcoal was used to kindle and keep up combustion of the tobacco-leaves or other material used? I am afraid that simply filling the tube of the smoker, the fire might die out just when it was required. Would the use of charcoal be in any way injurious to the bees?

2. I have two or three hives, the bees of which were unfortunately hived late (Aug. 8th). Consequently I have been feeding them with good syrup up to this time, and I find that they have not sealed over the liquid honey in the combs, although they have hatched out a fair quantity of young bees. Would you kindly state if the bees, being in this condition, are likely to survive the coming winter? and also the best food to be given, or any management you can recommend to save them? I have given flour-cake, but it does not appear palateable to them.—W. H. Baigent, *St. Denys, Southampton, Nov.* 14.

Reply to Query No. 434.—1. We have not experienced the difficulty anticipated with the Bingham smoker, and should certainly not use charcoal as suggested, its fumes being deadly poison.

2. If we had foreknowledge of what the forthcoming winter is even likely to be, it would be easy to prophesy as regards the bees; but as the weather of to-morrow is a secret to-day, we cannot offer an opinion. In all such questions, our advice is offered on safe premises. We declined in October to recommend November feeding, October was a very cold month, and from past years' experience, November should have been much colder, yet it has been mild and spring-like, and bees may have been enabled to tide over the risk attending late feeding.—Ed.

Query No. 435.—I have a swarm of bees in a straw skep. It weighed 20 lbs. a month ago, and has had about 1 lbs. of artificial food since. Ought they to have any more now, or be left to themselves till the spring? Will it be possible for a beginner to transfer them to a Woodbury hive in the spring, and what is the best time?—J. G., *St. Leonards.*

Reply to Query No. 435.—Should the stock be sufficiently strong in bees, it ought to do without more food until the spring crocuses are in bloom, when it will be good policy to feed gently and continuously with syrup, and to give pea-flour as artificial pollen. It is quite possible and as easy for a beginner to drive bees as for an expert, if he will adopt the principles advised in the *Journal* and Leaflets. With the bees absent, the transferring of combs is simply mechanical labour, which any one, with a little tact and patience, may readily accomplish. The best time for the work is twenty-one days after swarming, as then there will be little, if any, brood in the hive likely to be injured in cutting and fitting the combs together. Considering, however, the cheapness and utility of comb foundation, we have ceased to recommend the transfer of broodless combs; it is far safer, better, and cheaper to take the honey that is found in the hive at the time stated and melt up the combs, and to give the bees full sheets of foundation to work out as already directed in *Journal*.—Ed.

Query No. 436.—*Sugar Cake.*—We have had a most abundant honey harvest this year, which in some measure we owe to the many valuable hints and good advice contained in the *Journal*. Will you kindly say in your next what sugar-cake is? Whenever we have been obliged to feed bees in the winter, we have given barley-sugar. In your reply to Query 427 of this month, you say, speaking of winter feeding:—'It will be better to give *sugar cake* when required.' We tried dry uncrystallised sugar once, but the bees all died. Wishing you a happy Christmas and a prosperous new year.—E. R. *East Yorks, November* 21, 1881.

Reply to Query No. 436.—Sugar cake is made by boiling 4 lbs. of loaf sugar and half a pint of water together, stirring all the time to prevent burning. Try

a few drops occasionally on a cold plate, and when it sets hard (*i.e.*, not sticky) it is done. Remove from the fire, and keep stirring until nearly cold, then pour into moulds. Dinner plates, lined with paper, answer well for this purpose, and the paper need not be removed until the food is given to the bees.—Ed.

Query No. 437.—*Two or more Stocks as one.*—It is an admitted fact, I believe, that if one wishes to be successful with bees, *strong colonies* are of the first importance, and this being the case, it has occurred to me, that two or more stocks, with their queens, may be worked together without risk to the latter. My plan for obtaining this object is as follows:—Take a large double hive with entrances at both ends, containing two stocks, being kept separate for the first three or four days by means of a divider of perforated zinc, the perforations to be small enough to prevent bees passing through, which I think would have the effect of causing the bees of both stocks to have a *smell* in common, hence preventing fighting. On the third or fourth day after commencing this experiment, I would substitute a divider of the ordinary excluder zinc for the one having the fine perforations, and thereby giving free intercourse between the two stocks at the same time, at the same time keeping the queens in their respective domains. The points I should like your valuable opinion upon are (1.) Is such an arrangement practical? (2.) If so, do you think the conjoint action of two or more stocks any advantage over the present system of working stocks independently? (3.) Would the presence of two queens so near each other tend to excite a desire for swarming?—Sydney Ford, *Southerton House, Ottery St. Mary, Devon, Nov.* 16, 1881.

Reply to Query No. 437.—(1 and 3.) Though feasible on the face of it, the proposal is not practical, and is against the natural habits of bees—they insist on one queen and one brood nest, and where two healthy queens are within speaking distance of each other, they fight or swarm out. (2.) We doubt the value of the proceeding, even supposing the bees would live amicably together under the circumstances. The two sets of brood would require two sets of nurses, and honey and pollen gatherers to provide and administer the food required, and neither lot of bees would store more surplus than they would do as separate colonies. For honey-gathering purposes, one stock may be built up with combs of hatching brood from another, and a vast population created in an easy and safe way, and with such facility the experiment proposed does not seem particularly attractive.—Ed.

Query No. 438.—*Size of Frames.*—I have a doubt about the size of my frames. They are 9¼ in. deep by 9¼ in. wide (inside measure). Is this too small for general use? I have plenty of room in rear, and also above brood-nest, but what I want to know is, what the disadvantage (if any) is in having frames so much narrower than the Woodbury? I made my frames thus, before I knew the proper size, and have a lot of boxes by me to fit.—W. T., *Norton Lees, Sheffield, Nov.* 24, 1881.

Reply to Query No. 438.—There is no advantage in having the frames of Woodbury size, beyond the facility afforded for interchanging them. Other sizes may be made interchangeable, as are those named, and provided the hives will contain a sufficient number of them to afford the requisite breeding and storage space, the latter have no disadvantages so far as the bees are concerned.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. L. W. N.—Unsealed food or honey extracted from combs in autumn should be boiled and bottled off, when it will keep, and be perfectly good bee-food for use in the spring.

FRAME-HIVES, double walled, with Abbott's Woodbury Frame, on stout legs, moveable reversible floor-board, porch, entrance-slides, dividers, and quilt, complete, well finished, for 21*s.*; if painted, 23*s.* Cash with order. H. Wall, Rashwood, Droitwich. fo. 40

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AND BEE-KEEPER'S ADVISER.

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Subscriptions, Correspondence, and Inquiries to be addressed to

C. N. ABBOTT, Bee Master,

School of Apiculture, Fairlawn, Southall, London.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 105. Vol. IX.] JANUARY, 1882. [Published Monthly.]

Editorial, Notices, &c.

JANUARY.

A Happy New Year! to all our friends, and that it may be a prosperous one generally is our most earnest greeting at the beginning of 1882. Christmas has passed and, we trust, has been merrily spent, and thankfully. The past year, though all that could be desired in the South of Britain, has not been so kind in the North and in Ireland, where wet and cold have prevailed; nevertheless, there has been no diminution in the ardour of bee-keepers, who continue to press onward against all difficulties to the establishment of bee culture as a national industry. How many Associations have been formed and are forming in the United Kingdom we are almost afraid to say, lest we should omit any and offend, but their name is Legion, and the work they are doing invaluable. A year ago we were enabled to congratulate 'the craft' on the establishment of a central Association in Ireland consequent on the 'raid' made by the British in that gloriously beautiful land, and now we are in a position to state that a similar Association is forming in Wales under auspices (reported in another column) that will ensure it a firm base for operations in that too long reticent Principality.

The efforts of the British Bee-keepers' Association, worthy of all praise, as they have ever been under the able guidance of the Rev. Mr. Peel, promise a vast increase of usefulness through a channel that, until of late, has existed only in name in their prospectus. For a long time there has been a library in connexion with the Association, with Mr. Cheshire as librarian, but its books, with one or two exceptions, have remained on the shelves of the Society for the Prevention of Cruelty to Animals, Jermyn Street, London, who kindly placed them at the disposal of the Association; but now they are likely, under the care of Mr. Henderson, of Ealing, to fulfil the purpose of their existence. Mr. Henderson is developing his idea that the books should be lent to the members of the Association, and, for love of the work, has voluntarily undertaken the labour involved in their distribution and the correspondence it will entail. Borrowers, however, must be punctual in returning the books forwarded to them, a rule which must not be tampered with, or there will be an end to all regularity.

The English literature of bee-keeping will, all being well, receive a most valuable addition during the coming season in the form of a translation of Dr. Dzierzon's masterpiece, *Rational Bee-keeping*, an immortal work by the greatest German authority, quoted everywhere, but never yet rendered into English in its entirety. The translation is by S. Stutterd, Esq., of Banbury, whose scholarly ability is beyond question, and whose rendering of the text it is a pleasure in itself to read, and we have undertaken to supervise the Anglicised technicalities. The illustrations will all be reproduced, and every care will be exercised that the translation shall be intact, that wherever the English language is understood, the principles of German bee-culture may be ventilated. Hitherto English bee-keepers, except in isolated instances, have been able to compare notes with America only. Presently they will learn how things are done in Germany, and done successfully, too, and light will be let in which the unprejudiced will duly appreciate.

Another great means of instruction and help to the cause will be inaugurated this year, and, let us hope, will be faithfully carried out. On page 142 of the present volume of this *Journal* will be found an offer by the Honourable and Rev. H. Bligh, of valuable prizes for the promotion of cottage bee-keeping, and the Committee of the B. B. K. A. have taken the matter up, and are considerably exercised as to the best means of carrying out the competition in a way that shall prevent the possibility of after-remark on its strict fairness. We are not in a position to publish the various suggestions that have been made, but we may state that

the idea is acknowledged to be an excellent one, and it is hoped that additional donations will raise the ten pounds offered by Mr. Bligh to twenty guineas at the least; and we would add, as much more as can be got together, that the competition may be as extensive as possible, and that there may be no lack of means to ensure close scrutiny during its carrying out. It should be well understood that the competition is double-barrelled, and that both barrels are charged with missives which, if they reach their mark, will destroy 'old fogeyism' for good and all, and will establish beyond doubt the value of bee-keeping as a paying industry when well understood and practised. We look upon this scheme as one of the most valuable ever set on foot, and consider it worthy the most earnest attention of bee-keepers associated and otherwise. Well-wishers to bee-keeping can imagine the effect of the establishment of a few frame-hives in an unbelieving cottager's garden; first-class hives, made from sixpenny egg-boxes (see November *Journal*), and fitted out with foundation made at home after the manner shown at the late South Kensington Show. Fogey would open his eyes so wide that Fogeyism would get through the lids, leaving room for Common Sense to come in and establish itself; and what would the advocates of expensive hives and bee-palaces have to say? for the second barrel of the scheme, whether intentionally or not, aims straight at them, and its bomb will explode in their midst, scattering them to the winds, and leaving the ground clear, that bee-farming may be practised without being heavily handicapped.

There is one other subject that has occupied our thoughts for some time, and which, we think, will commend itself to our readers, viz., the establishment of a Bee-keepers' Chronological Calendar of Events, to issue monthly for the year in the *Journal*, and to take permanent form at the year's end, when, subject to correction and revision, if satisfactory it could be interspersed with concise information on bee-keeping, and would be eminently useful. We are collating facts from past years' records in the *Journal* and elsewhere, but there are many things that we cannot put our hand upon. We want the dates of all kinds of bee inventions and discoveries both here and elsewhere; the dates of formation of Associations, the birth-days of prominent bee-keepers past and present, and death-days of those who have been gathered to their fathers; dates of lectures and shows, and of any fact that may be thought worthy of record, and we confidently ask our readers to give us all the help they can in our desire to get up an array of facts that may be turned to useful purpose. Our list for the present month is rather meagre, but by the end of it, before the February Number appears, we hope it will be enlarged. Hon. Secs. of Associations can be very helpful if they will take only a little trouble, and our readers generally can, and we hope will, afford ready assistance.

USEFUL HINTS.

The Mild Season.—The weather during the past three months has been, generally, so mild and open that bees have been unusually active, in some instances gathering pollen, or its substitute, so late as the 6th December, and as a consequence the consumption of food and the loss of bees has been greater than they would have been had the bees been confined by cold and remained in a semi-dormant state amongst their combs. In hives 'well found' in autumn there will be little danger, but stocks comparatively weak should be watched.

Signs of Evil.—Bees seldom suffer and die without giving signs that a watchful eye can detect. If in danger of starvation they will fall to the hive-floor, and some of them will struggle to the entrance and stand shivering till they die. If dysenteric through cold or excessive moisture, some will crawl, with distended bodies, outside the hive, and there will be excreta of dirty yellow appearance about the alighting-board. When breeding has commenced, and from any cause is suddenly checked, dead white bees, partly eaten, are likely to be seen at the entrance, and in either case the hive should undergo immediate examination.

Winter Searching.—Outside appearances, while often suggestive of evil within, are not always indicative of the extent of it, and we would, in all suspected cases, at once make search by passing a wire hook through the entrance over the floor-board round the hive. If many dead be found the hive will most likely require to be dried and the bees fed, and feeding should always follow on the discovery of white bees on the alighting-board. In searching with a wire, if but few dead bees be found, and the living follow closely upon their removal, there will be little cause for anxiety for the time being, and if the clustering bees are found to reach the floor-board (in an ordinary hive), they may be accounted safe. The worst sign of mischief is the discovery of numbers of dead and dying bees all distended and many burst, their filth, of a brownish-yellow colour, staining both bees and floor-board and emitting a sickly odour. This is dysentery, a disease more easy of prevention than cure. There is another evil the searching-hook may discover, and that is, the presence of mice in the hive. These, like dysentery, should be carefully guarded against, but sometimes,

like the mouse in the fable, they get in and increase to a size that prevents them getting out again. Their presence will be known by an abundance of comb chips on the floor-board, and, at all risks, they (the mice) cannot too quickly be dislodged. They eat both bees and honey, their odour is most objectionable to bees, and often bees will desert a hive in consequence of it.*

Dysentery.—The cause of this is cold and dampness. In warm weather, however damp, provided the bees can fly abroad, it does little harm, as the bees can discharge the fæcal matter outside the hive, but in cold weather, with the cause ever present, the cure of dysentery is not an easy task. Dryness of hive, warmth, and new syrup or barley-sugar, are the requisites; and, if it be possible, a spraying of the combs with salicylic solution, to arrest the fermentive action the dysenteric odours may have produced, will be desirable. Hot bricks on the hive or under it, and a bottle of warm salicylized syrup given at night, is the best rough and ready treatment, and the first fine day should be taken advantage of to give the bees a flight and to cleanse them thoroughly. After a flight, which may be caused on a fine day by giving warm syrup copiously, a new set of combs, containing sealed honey, in a clean hive, will be most beneficial. Dysentery is the winter scourge of dilatory bee-keepers, and as it generally culminates in foul brood, it ought to be carefully guarded against, or strong measures should be taken to cure or stamp it out.

Spring Feeding.—The mild weather has made spring flowers start into renewed life abnormally early, and many are inquiring as to the advisability of giving pea-flour and stimulating the bees with syrup. It would be about as reasonable to put cucumber plants in the open ground; they might thrive for a day or two and then be killed outright. Take *Punch's* advice and 'Don't do it.' The blossoming of crocuses is usually indicative of the time to commence feeding, but this year they are likely to be full early. Breeding in winter, however caused, is generally followed by dysenteric symptoms, and, curiously enough, dysentery, however caused, is nearly sure to induce breeding. Bee-keepers should, therefore, carefully avoid the possible causes of either.

Drying Out.—At this time of year every opportunity should be seized for drying the quilts and packings about the hives. A sunny day ought to find all the roofs turned inside to the sun, and the quilt, &c., exposed, that the sun's rays may dry and air them. We have often suggested that a window in the roof to admit heat into the upper storey during winter would be advantageous.

Queen Wasps.—Though we were almost free from wasps during the whole of last season, we have caught and killed scores of those hidden in the coverings of hives and amongst piles of drying deal boards. They may be of great service in the economy of nature, but are not wanted near apiaries, and should be destroyed.

Tom Tits.—These saucy little rascals do a great deal of mischief in snowy weather, when food for birds is scarce. They wait at hive entrances and attract bees to the alighting-board, where they snap them up and devour them. Those who do not like to kill them may prevent them doing mischief by fixing a piece of wire-netting a few inches about the hive entrance, so that the bird cannot pick up the bee from the floor-board. On the wing the bee is fairly safe, and in close quarters the bird will be likely to get the worst of it.

Preparation.—Now is a good time to prepare for the coming season by ordering whatever goods will be of a certainty wanted. Bee-keepers should consider that hives and bee-fixings are too bulky to be stored in sufficient quantity to be ready for all emergencies, and they must not blame beehive-makers if they have not at swarming time exactly what each bee-keeper requires. There are dozens of patterns of hives, and for a hive-maker to provide as large a number of each as might be wanted of the whole, it would be necessary to have a store-room as large as the Crystal Palace and capital in proportion,—a proposition too absurd to be entertained for a moment. There are many hive-makers and dealers in bee-gear, all ready and anxious to know the state of the public mind in respect of hives and other goods, but, with few exceptions, the desired intimation will not be given until the things are actually wanted, and then the unfortunate hive-maker will be held to blame. It may be urged with good show of reason, that bee-keepers have not the capital to advance in the winter season, an argument that may cut both ways, and brings us no nearer to a solution of the difficult question, 'What shall hive-makers provide?' If it be true that 'a word to the *wise* is sufficient for them,' we are content to let the question rest, but doubtless there will be many OTHERWISE, who will put off till 'to-morrow, and to-morrow, and to-morrow, to the last syllable.' The beginning of a new year is a good time for settling accounts and clearing up arrears of subscriptions for *Bee Journal*. We are very grateful for the patronage we have received, and tender our best thanks to all our friends and supporters, but we cannot

* Bee-gear stored for future use should be carefully protected from micely visitation. Many supers remain unoccupied, and the bees persist in swarming because they (the supers) have been where mice have been.

refrain from quoting an observation by a young lady on Ramsgate Pier, just as the boat was leaving for London :—'Thank you very much, dear (readers). Give my best regards to everybody; tell them how well we are all getting on, and——don't forget the Post-office order!'

HOW TO MAKE A FIRST-CLASS HIVE.

We have been asked whether the dimension given for the breadth of the inner side walls, viz. $8\frac{3}{4}$ inches, is not too great seeing that the depth of a Woodbury frame is only 8 inches from the under side of the shoulders on which it rests, and that consequently there will be three quarters of an inch between the bottom of the frames and the floor-board? In reply we would direct attention to the foot-note which shows that shrinkage was comtemplated, and, as a matter of fact, will be almost certain to take place, reducing the hive sides considerably, and probably leaving less than half an inch beneath the frames. We gave the dimension advisedly because in all probability home-made frames will be furnished with a thicker bottom rail than is customary, which would still further reduce the space, and because, under all circumstances, even supposing the three quarters of an inch to remain in full, it would not be detrimental, while if less than a quarter should be left it would be obstructive.* Nevertheless, if the three quarters be objected to, it will be easy to plane off a little at top or bottom of the hive and reduce it. Regarding the top edge of the side boards, we ought to have advised that the outside angle should be planed away so as to leave only about an eighth to a quarter of an inch for the frame-ends to rest upon. In our own best hives we usually use boards still narrower than those described, and fix a thin strip of hard wood as a runner along the top with about an eighth of an inch top surface, only. We endeavoured to show this in our sketch to the artist, but he has shown the side boards, flat on top and level with the corner pieces, p. 129. We are further questioned as to whether the outside casing should not project a quarter inch at bottom in the same way that the inner walls do, and we can only apologise for not having said as much, though we thought it would be obvious to interested readers. The frames now claim attention, and as we know of no ordinary frames that are so good as those with broad shoulders to the top bars, called after our own name, we strongly advise that they be adopted. They have stood the test of several years, have in hundreds of cases displaced plain frames with distance-pins, have been adopted by many hive-makers (generally without acknowledgment), and would be made by almost all amateurs but for the nicety required in their manufacture, and which can only be achieved by the use of machinery which few of the latter class possess. We, however, now propose to simplify their manufacture so that any one may make them who can use saw, chisel, and hammer respectably, and who can bore through a piece of leather or gutta percha with a bradawl.

To make the top bars for ten frames a piece of sound board is required, $17\frac{1}{2}$ inches long, $10\frac{1}{2}$ to 11 inches wide, and half an inch thick, though slightly less than the last would do. Lay it on the bench, and with the square mark it across at exactly an inch and a half from each end, then saw along each of the lines an eighth of an inch deep as it lies, and saw, chisel, or plane out the ends to the depth of the saw grooves,* forming a rabbet at each end, as per woodcut, and leaving $14\frac{1}{2}$ inches of wood solid

Fig. 1.

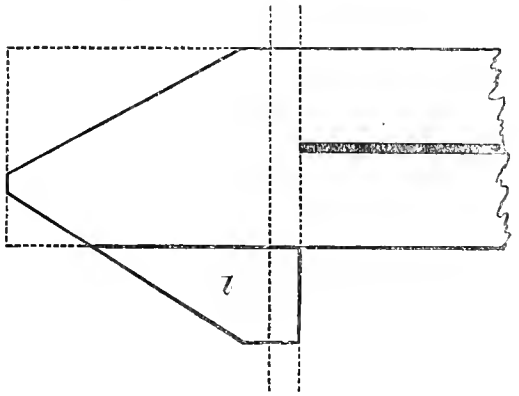
across the centre. With a pencil and rule line out the piece lengthwise, and cut it into bars an inch wide, when it will be seem that each bar will fit the hive crosswise, the shoulders formed in cutting the rabbet preventing longitudinal movement. The wide ears must now be put on, and herein has been the difficulty with amateurs; if they nail on small pieces of wood they would almost certainly split; but if they adopt our idea they cannot fail. There is an old saying, 'There's nothing like leather,' and if our hive-making friends will obtain a strip of sole leather, or its best substitute, gutta percha, ten inches long, half an inch wide, and of the thickness of the reduced frame ends and cut it into inch lengths and then divide it diagonally as shown here they will have twenty end-pieces, that when fixed to the frame ends will neither split nor break off.

Our next woodcut shows the true size (in flat section) of the Abbott frame-end, resting

* The contemplated mode of making the frame-ends, by which it might be found convenient and less expensive to reduce the thickness of the 'lugs' or shoulders of the frames, which would let the frame a little lower into the hive, was also in mind when the direction was given.

* In view of leather being used to widen the shoulders it may lessen the cost if the ends of the frames be rabbetted a quarter of an inch instead of an eighth; it will not weaken the bar, and the leather being a quarter inch thick will be stout enough for all purposes.

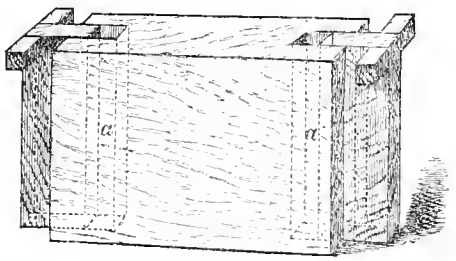
on a hive runner indicated by the parallel dotted lines, the thick line represents the saw groove, in which foundation is fixed; the part *l* is the piece of leather or gutta percha, and the dotted lines to the left show the parts cut off from the plain bar, to form the pointed end



which is so convenient in handling. It will be seen that the pieces nailed on also rest on the hive runner, and this evidences that the shoulder on the underside of the bar is sufficient guide to the position in which the leather pieces should be fixed. In nailing them on, inch wire pins will do for the wedge-shaped ends; but inch and a half wire nails will be required for the square ends, and they should be driven diagonally into the thick part of the bars. The top bars being formed, the remaining parts of the frames are not difficult; the uprights may be of quarter or three-eighth stuff, the latter preferably, as it will be easier for amateurs to nail into; they should be of the same width as the top bar, and should be fixed so as to hang a quarter of an inch (as nearly as possible) from the hive sides. The length is usually seven inches and three quarters, which with the eighth of an inch 'gained' by reducing the ends of the top bar and an eighth, the thickness of the bottom rail, makes eight inches, the measurement mentioned by the correspondent first quoted. The mode of making the saw-groove along the centre of the top bar for receiving comb-foundation has been already described; but a repetition will perhaps not be unacceptable. The best way is to take the bars to some one using a small circular saw, and get them cut true upon it; but failing that convenience they may be cut with a key-hole saw, a hole having been first bored near one end to permit of its point being passed through. The quilt is a simple arrangement, a piece of light linen or cotton material as the first layer, and then several thicknesses of carpet, flannel, bagging, felt, or any other porous material that may be convenient. For feeding purposes it is usual to cut the hole through them on one side of the centre, so that when not required for that purpose the hole may be covered up by simply reversing the upper strata of which it is composed.

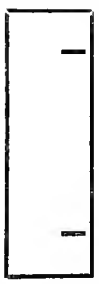
The dummy, or divider, next claims attention, and it is usual in cheap hives to cut a piece of board of a size to fit the hive, and to consider it good enough for all practical purposes, but our endeavour is to show what is a little better than 'good enough,' and therefore we describe the dummy or divider that was awarded first prize at the South Kensington show in July last.

It is formed of a piece of soft pine an inch thick, $8\frac{3}{4}$ wide, and about $13\frac{1}{2}$ inches long, planed on both sides and on top and bottom. This is grooved at each end, on the right about three-quarters of an inch, on the left about an inch deep, the grooves being about three-eighths of an inch wide. Two slips of oak, three-eighths of an inch thick, and about an inch wide, are cut to fit the grooves, and that on the right is fixed in position by a single pin driven through the whole at *a*, which permits



Abbott's Prize Division Board, 1881.

the oak slip to move, like a scale-beam, on its centre, and fit against a hive-side, whether it be right-angled or sloping in either direction. The slip on the left, however, is differently treated, and two small slots, about a sixteenth of

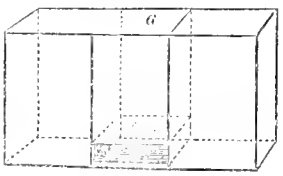


an inch wide and three-eighths long, are made in it as indicated, near the top and bottom. A lockspring of the ordinary V pattern is then fixed at or near *a*, in the groove above, so arranged that its loose or outer arm shall press outward at the centre against oak strip No. 2 when it is placed in the groove. The strip being so placed, and pressed against the spring, two pins are driven through the cheeks of the groove, and through the slots in the oak slip also; and if these be done as intended, the dummy as a whole should be capable of fitting any hive of Woodbury pattern, even though its sides be not perpendicular. In inserting it it should be taken in both hands below its centre, and the oak strips pressed into the grooves at bottom, and

when between the hive walls it may be pushed to the bottom without difficulty.

To prevent it touching the combs when in position, it will now be necessary to fix small blocks of wood, leather, or gutta-percha, to the top outer corners of the oak slips as shown in the woodcut, and these should project at the least a quarter of an inch beyond the face of the central part of the divider, and ordinarily it will be well to make them properly distance-keeping on both sides, that they may be reversible. Many may prefer to use two springs on the left of the divider, in which case they should be so arranged that their outer arms press against the oak slips near the top and bottom.

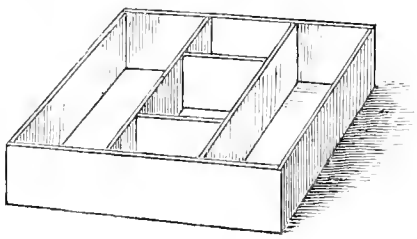
Winter Packing.—The double walls of the hive will give ample space for packing any reasonable amount of chaff or other material, to prevent loss of heat through them, and although we are thoroughly convinced that nothing can be devised so perfectly protective as the combs themselves when duly enclosed, there are many who will not be satisfied without chaff-cushions or other packing at the front and back of them. To meet this requirement, and to 'kill two stones with one bird,' we devised and exhibited at South Kensington Show a chaff-cushion or box, that might also be used as a feeder, with the advantage that in case of accident the bottle might be replaced almost without trouble or expense. The woodcut shows a



Abbott's Feeding Dummy.

little light wooden frame, with central divisions of a size that will exactly receive a common green glass medicine-bottle. At the bottom of this compartment, and about half-an-inch from the bottom of the frame, a slip of zinc is introduced having holes in its centre, upon which the inverted bottle will stand. The side compartments of the frame may be filled with packing up to the top; and if feeding be unnecessary the central compartment may be stuffed with anything easily removeable, an old stocking-foot or small bag filled with hay would answer; but in spring and autumn, when feeding is necessary, this dummy arrangement will be found most useful, as the food can be administered without disturbance of the bees or the quilt, and in perfect security from outside bees under fair ordinary conditions. In feeding, the mouth of the bottle is covered with a small piece of vegetable parchment, and the daily dole is regulated by the number of holes in it, which should be made with a red-hot knitting-needle, in which case they will remain open. Three or four holes will be ample for spring feeding.

Top Cushion Feeder.—A top cushion is a handy thing on a hive in winter, as it keeps the quilt beneath it closely down upon the frames, while it permits due ventilation; but we think most of our readers will agree that when feeding is necessary it is very inconvenient, and often highly injurious to the bees, to be obliged to remove the cushion to permit of the feeding-stage being placed upon the quilt. At the South Kensington Show, several of our hives were furnished with our cushions, and one was exhibited with the dummy feeder above, in Class 35, No. 259, as 'a new invention, calculated to improve the culture of bees,' but the judges did not think much of it, and passed it over. As will be seen from the woodcut, it



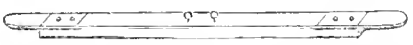
is a wooden frame with central compartment. The underside of the frame, except the central space, is covered with the usual strainer or calico, and the compartments thus formed are filled with chaff or other packing. The central space is of the same size as our feeding-stage, so that when the latter, or any other not larger is upon the quilt, the cushion can be worn upon the hive, and feeding continued without its removal. When discontinued, the bottle can be removed, and its place filled with a bag or pad in the usual way. There is not much in the invention, but in use it is very convenient, and one can but wonder that it was not thought of before. It is applicable to any hive or feeder.

We have now run through all the chief parts of one of the simplest and best hives that has ever been brought to the notice of the public. We have not thought it necessary to describe a special porch, or entrance-slides, as they are matters of every-day knowledge, nor have we tried to introduce aught beyond the ken of a novice or amateur, whether as a carpenter or bee-man. Nevertheless, if anything is not clear, a post-card pointing out the deficiencies will ensure early attention in the *Journal*.

HOW TO MAKE A FIRST CLASS OBSERVATORY HIVE.

Our friend 'Merci' has paid us a high compliment on the accuracy of the directions hitherto given. He withheld his opinion until he had made a hive as far as we had described the way to do so, but has made it only fifteen inches long, instead of thirty, thereby taking from the hive the chief means of observation, for without length in the interior there cannot be sufficient separation of the combs to permit a full examination of them individually. Our description, however, will answer for any length, as far as the body of the hive is concerned; but for the facilities the peculiar features of the crown-board (?) are intended to supply, shortness will be, in a measure, fatal.

The frames for the hive, as we before stated, will be denuded of their wide ends, and in lieu of them tin ends will be put on in the frames, being prepared thus:—Take a piece of board exactly fourteen and a half inches long, and three eighths of an inch thick, and cut it into bars an inch wide, which will exactly fit between the side walls across the hive. Each of the bars should have three small screw eyes, an eighth of an inch in diameter, inserted in the top, one in the centre, and the other two about three quarters of an inch on either side of it; the whole to be in a line along the bar, and when screwed home, to stand across it so as to be easily threaded from above—by accident, only two are shown in the wood-cut.



Bar, with Tin Ends, for Observatory Hive.

The sides of the frames should now be put on a quarter of an inch from each end of the bars. They will be seven and three-eighths inches long, and an inch wide, and the bottom rails fourteen inches long, and a quarter of an inch thick, when nailed on, will make the frame eight and one eighth inches deep outside measure, leaving a quarter of an inch clear between them and the floor-board when in position.* Now take some strips of stout tin, iron hooping, sheet copper, or brass, as may be most convenient or tasty, an inch in width, and about two and a half inches long—round off one end, and having made some screw holes in the other, fix them to the ends of the top bars, the rounded ends projecting,* and, excepting the comb foundation, which may be fixed in any way preferred,† the frames will be complete, though the chances of propolisation will be lessened if the half inch that touches the glass at each end of them be reduced on the lower side, so that the thickness under the tin shall be not more than an eighth of an inch. The frames being made there only remains the crown-board (?), which is a frame of wood filled with pieces of glass, with slight apertures between them. To make the frame, a piece of wood, about eight feet long and an inch square, should be obtained, and a groove made along one side of it, three-sixteenths of an inch from the edge. The groove should be of a width to receive the plate glass that is to go into it, and of a depth of about a quarter of an inch, rather more than less; and the piece should be cut into lengths to form the frame, which should be of a size to lie upon, and be even with, the tops of the corner posts of the hive, the grooved side being inwards, and the edge that is three-sixteenths of an inch from the ground at the bottom. The manner of making the frame may be left to the taste of the maker; it may be nailed together, halved together and nailed, or tenoned together in the same way that common school slate frames are, and an amateur cannot do better than borrow a school slate to learn the way to do it. Having formed the frame, which may be plain or beaded according to taste, the glasses must be put into it before it is nailed or glued together; and these require care in their preparation. The engraving shows the style of arrangement—a wide piece of glass at each end, and the centre filled up with narrow pieces, rather less than an eighth of an inch apart. The greatest

possible facility for examining the combs will be obtained by having the narrow strips an inch and a half wide only, but they would possibly be too weak to be of practical utility. The safest width, consistent with easy observation, is four and a half inches, and there should

* These frames, when intended to be put into an ordinary Woodbury hive, should be fixed under false top bars of the usual shape, three eighths of an inch thick, when they will be of proper depth, and will be flush with the others in the hive.

* The rounded, projecting ends must each eventually have a hole made in it, but the position of them will depend on circumstances, which will be the subject of consideration later.

† The easiest way of fixing the foundation will be by sawing the top bar down the middle before the ends are nailed on, leaving one corner loose until nearly finished, and when the foundation is inserted in the saw groove press the loose side of the bar home to its position, and fix it with the screw through the metal plate. In this case the screw holes must be made in appropriate positions, which is apparent.—Ed.

be at least three pieces of that width, which will leave the end pieces eight inches wide each, as nearly as may be consistent with the depth of the grooves in the frame. Five pieces of glass will thus be required; (our woodcut shows four only) the three central pieces should be rubbed smooth on both edges, and the two end pieces on their inner edges only, and when ready they should be put into the sides of the frame with glue, to which

a little sugar has been added—a tea-spoonful to about a tea-cupful of glue—and then the ends of the frame should be fitted on and made secure. When placed on the hive, a sixteenth inch hole should be bored straight through each corner into the solid part of the corner posts, and a wire nail with the head filed off should be driven down into each post. The crown-board should then be lifted off, and the nails tapped a little further in, that they may be well below the surface of the crown-board, forming steady pins to keep it in its correct position when in use.

Though this hive is of sufficient length to receive twenty frames, it will be evident that if that number were put into it they would be, in a sense, fixtures, inasmuch as there would be no room within it for movement of any of them; and it would be in the nature of a simple glass hive, and little better than one of the ordinary kind with windows in it; but it being intended that the frames shall be moveable within to permit of the thorough inspection of each frame of comb, it is not advisable to use more than eight frames of comb, and one divider, or dummy. The last-named may be formed of an additional frame, covered on the front side with a thin board, which coming exactly under Slot No. 2 in the glass top, may be made to fit the sides of the hive by slips of glass, wood, or metal, pushed down from above, and the top of the frame can be similarly treated. The hive will now be complete, in a sense; but before dismissing the subject, its use may need explanation, to prevent our readers concluding (as has already occurred) that some of the directions we have given are unnecessary.

We will suppose that eight frames of foundation have been put into the hive with a swarm in the usual way, and are built out and occupied by the bees, and that it is determined to overhaul them. It will be found that the tin ends of the frames project beyond the sides of the crown-board, and that there is a space between the latter and the top of the hive walls, along which the frames can be slid; and it will be well here to note that if, through warping of the wood or faultiness in construction, the space should be sufficient to permit a bee to pass, it can be reduced by shortening the tops of the corner posts, for it is only NECESSARY that there should be room for the frame to slide. Now in a general way, the hive being all glass, if the dummy be released and drawn to the back of the hive, the frames can one by one be drawn back also; and as there will be over sixteen inches of empty space through which they can be passed, and as each frame can be considerably skewed by advancing one of the tin ends more than the other, there will be sufficient opportunity for observation.* But it may happen to be desirable to take special cognisance of some particular part of a comb, to witness the hatching of a queen, the formation of a queen-cell, or any other interesting operation, in which case it would be a 'vast improvement' if the frame could be brought close to the side wall of the hive, and it is for this purpose that the slots in the crown-board and the eyes in the frame-tops have been provided. We will suppose that frame No. 4 from the front contains a special point of interest. We slide the four in rear of it to the back of the hive, where they (with the dummy) will occupy about seven inches, and we bring No. 3 under the slot No. 2 in the crown-board. There will then be eight inches full between the remaining three frames and the slot (No. 2) on the front side, and over nine inches at the back, in which the fourteen-inch frame can be swung—but how are we to swing it? We make a hook similar to the sketch, and slipping it into slot No. 2, thread it through the three eyes mentioned before, or if the comb is unevenly balanced, we thread two eyes only, and, lifting and turning the hook, we turn the frame, the tin ends sliding easily out of the space between the hive walls and the crown-board, and being 'slung,' we alternately bring it to both sides of the hive, and examine it at leisure. We selected No. 4 frame for illustration because it and No. 5 are the crucial tests of correctness, but the latter would have to be brought under No. 3 slot. We have only now to describe the cover for the hive, which is not particularly important at present; and we defer it to our next, trusting that anything not understandable may be reported to us in the meantime, that the whole matter may then be cleared up, and

* With the hive in this condition (without the slots in the top) the judges at South Kensington, 1879, considered it specially worthy of mention, and that it presented 'a new starting-point for vast improvements.'

that many hundreds of amateurs and others will make hives of the kind described, and keep bees in them as a means of instructing their friends and neighbours and furthering the interests of bee-culture generally.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

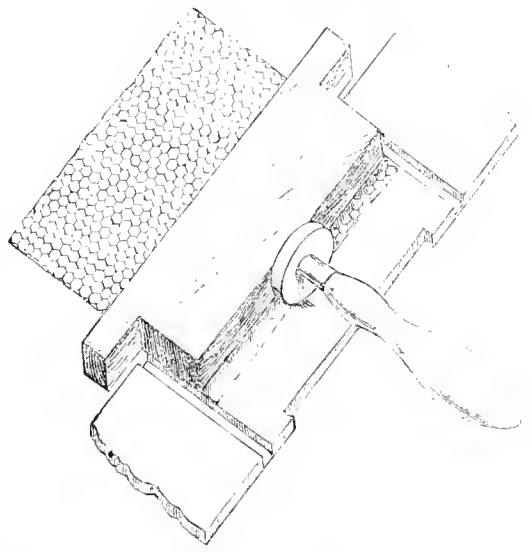
This Association is increasing rapidly, having on the 16th December 147 members on its lists, which number will be, without doubt, rapidly increased when the circular letter just issued, announcing its formation and objects, has had due effect. It is highly gratifying to see so many influential names on the front page of the circular as patron, president, vice-presidents, and committee, and to find so much that is practical and useful embodied in the letter itself. The 'chief aims of the Association' are all that can be desired, and the 'advantages of membership'—viz., 'free admission to all exhibitions and any bee tent, free admission to all lectures and meetings, a sure market for honey, the opportunity for learning much more about bee-keeping, and the privilege of competing for prizes at shows—entry free'—ought to swell the number of members enormously. Those intending to attempt the formation of county or other Associations would do well to write for copies of the circular and exhibit them when canvassing for patronage, the list of names on the first page being sufficient to satisfy the most lofty that the recognition of bee-culture will be in no way derogatory to them. The Rev. J. Blake Humfrey, of Great Dunham, Swaffham, Rectory, is the Honorary Secretary *pro tem.*

BEE ASSOCIATION FOR CAMBRIDGESHIRE.

We are glad to be able to report that an Association has been formed for Cambridgeshire and the Isle of Ely. The Lord Lieutenant of the county has consented to be the President, and Sir H. Brand, Speaker of the House of Commons and M.P. for the county, is one of the Vice-Presidents. A meeting will take place during the early part of the present month, particulars of which can be obtained of the Rev. A. T. Crisford, of Great Shelford Vicarage, who has accepted the office of Hon. Sec., and will be glad to receive the names of all bee-keepers in the county.

FIXING FOUNDATION IN SECTIONS.

This has hitherto been a tedious process, involving the use of molten wax and all the disagreeables attending its use, but our eldest junior (Mr. J. A. Abbott) has contrived a means by which, with well-made foundation, the work may be easily, effectively, and rapidly performed. We use the term 'well-made' as applied to the foundation advisedly, for in many instances, either through carelessness or ignorance in its manufacture, or through impurity of the material, it is sent out as rotten as sand, or as brittle as glass, and in either case will scarcely bear handling. Our junior's invention consists of a simple little wheel on a handle, and the method of using it will be easily understood by reference to the illustration. The section may be open, flat, or made up square, but for the present purpose it is in the flat, that part only being shown to which the foundation is to be attached. It is laid upon a table (near the edge will be most convenient) and the piece of foundation is laid



flat upon its covering, rather more than half its (the section's) width. Upon the foundation is laid a piece of wood, about an inch and a half wide, and three-eighths thick, as a gauge, having projections at either end, which, when applied to a made-up (square) section, will cause the front face (against the wheel) to lie exactly alongside the centre of the section, permitting about an eighth of an inch of the wax foundation to be visible along its lower edge. Now, with the left hand pressing upon the gauge piece, take the wheel handle in the right, and having dipped the wheel into some thin starch, roll it heavily along the exposed strip of foundation, pressing the wax into the wood, and the work may be considered DONE, it only being necessary to set the section right way up, and to bend the foundation so that it shall hang perpendicularly.

With sections ready, foundation cut to shape, and a small plate containing a little starch at hand, any one, after a few minutes' practice, can fix the guide-sheets at the rate of from five

to ten per minute. Combs built in sections in which the foundation has been fixed by the means described, have not the thick rib of wax at the top, which is usually found when the foundation has been cemented in with molten wax, which is a great feature in its favour. The invention was exhibited at the South Kensington Show in July last, in Class 35, and was favourably mentioned by the judges, and at the Louth Show (Lincolnshire) was awarded the first prize in class 26, the judges also making special mention of it in their report—page 162 in present volume of *Bee Journal*.

TRADE CATALOGUE.—ADVERTISING THE JOURNAL.

Mr. A. Cockburn, Cairnie-by-Keith, N.B., has favoured us with his catalogue dated Nov. 1881 for 1882, in which he says of the *Bee Journal*, No. 39, in his list of apiarian requirements:

'If you do not read the *British Bee Journal*, get it at once: if you do not, you need not expect to know public opinion, and the best mode of bee-culture so clearly taught by the Editor. It is published monthly; price 6*d*. per annum; 6*d*. per copy post free. Address, C. N. Abbott, Fairlawn, Southall, London. Please do not forget. "No *Journal*, no honey;" so said a customer of mine.'

Mr. Cockburn not only speaks in favour of the *Journal*, but plainly states that his hives &c. are of the patterns, or on the principles we advocate; and if all are made with the care and neatness displayed in those exhibited by him at our English shows, which we have no reason to doubt, he has no compeer on his side 'the border,' either for quality or cheapness. We sincerely thank Mr. Cockburn for his kindly mention of the *Journal*, and hope some day to have the pleasure of his personal acquaintance.

BRITISH BEE-KEEPERS' ASSOCIATION.

At the monthly meeting of the Committee held at 105 Jermyn Street, on the 14th Dec., there were present Mr. T. W. Cowan (in the chair), Rev. G. Raynor, Mr. D. Stewart, Mr. J. M. Hooker, Mr. W. O'B. Glennie, (Treasurer), and Rev. H. R. Peel (Hon. Sec.) The Hon. and Rev. H. Bligh was also present, and discussed with the Committee his proposals for a competition with the view to the better promotion of cottage apiaries throughout the United Kingdom. It was the general opinion of the meeting that such a competition should be limited for the first year to the six Home Counties and that a sum of 21*l*. should be offered in prizes of 6*l*., 5*l*., 4*l*., 3*l*., 2*l*., and 1*l*., for the best managed and most profitable poor man's economic department of an apiary. It was resolved that the question be adjourned for further consideration to the next meeting, and that in the meantime a set of rules be drawn up for the management of the competition. A letter was read from the Secretary of the Royal Agricultural Society, approving of the draft schedule of prizes for bees, hives, honey, and bee-keeping appliances, to be offered for competition at the Royal Agricultural Show to be held at Reading in July next, and stating that the Royal Agricultural Society would be pleased to grant the sum of 30*l*. to the British Bee-keepers' Association to enable the Committee of that Society to carry out the proposed exhibition. It was resolved that a vote of thanks be sent to the Council of the Royal Agricultural Society for their increased support towards the promotion of bee-keeping.

The Prize List for the Annual Show of 1882 was completed, and it was resolved to publish the same in the *Bee Journal* for the ensuing month (see advertising columns), and to prepare the same for general distribution. It was also resolved to hold the next Quarterly Conversazione on Wednesday, January 18th, the Rev. G. Raynor promised to read a paper on 'Bee Hives and Houses.'

The Library. The Librarian desires to acknowledge, with thanks, the receipt from C. N. Abbott, Esq., of Vol. VIII. of the 'Gleanings in Apiculture;' a series of the 'Crystal Palace Leaflets;' J. G. Desborough's 'Lecture on Bee-Keeping;' and 'A Lecture on Bees and Bee-Keeping,' Southall, 1879.

The following works, acquired by purchase, have been added to the library:—Rev. John Thorley's 'Melissologia; or the Female Monarchy,' 1744; Rev. Stephen White's 'Collateral Bee-Boxes,' 1764; Joseph Warder's 'True Amazons,' 1765; John Mills' 'Essay on the Management of Bees,' 1766; W. White's 'Complete Guide to the Mystery and Management of Bees,' 1771; David Wildman's 'Complete Guide for the Management of Bees throughout the year,' 1799; Francis Huber's 'New Observations on the Natural History of Bees,' 1808; John Keys' 'Treatise on the Breeding and Management of Bees,' 1814; R. Huish's 'Cottager's Manual for the Management of Bees for every Month in the Year,' 1823; 'The Honey-Bee and Bee Books,' No. 141 of Quarterly Review, Dec. 1842; Arthur J. Danyell's 'Italian [Giotto] System of Bee-Keeping,' 1876; 'The Honey-Bee' (Chamber's Information for the People).

BEES, HIVES, AND HONEY AT THE BRIGHTON HEALTH CONGRESS.

The Council of the Brighton Health Congress invited (through Mr. F. V. Hadlow, the Chairman of the Food Department) the Committee of the British Bee-keepers' Association to make a display of honey and bee-keeping appliances at their exhibition, which commenced on the 12th Dec., and allotted space free of charge for the purpose. The exhibition of honey, &c. was under the able management of T. W. Cowan, Esq., the Chairman of the Committee of the British Bee-keepers' Association. Bee-hives and other appliances were kindly sent by Messrs. Neighbour and Sons, Mr. S. J. Baldwin, Mr. A. Rusbridge, Mr. T. B. Blow, and Mr. Woodbridge. Specimens of small sections of honey in the comb, and extracted honey in glass jars, were contributed by T. W. Cowan, Esq., J. M. Hooker, Esq., Mr. R. Scott, Mr. Baldwin, Mr. Rusbridge, and Messrs. Neighbour & Sons. Many hundreds visited the exhibition, and much interest was displayed in the department allotted to bees, hives, honey, &c. The uses of the various exhibits were explained by T. W. Cowan, Esq., Mr. Baldwin, and Mr. Rusbridge. The Congress sat daily, and various papers were read on the promotion of health and the production of food. At the meeting held on Thursday, the 17th, J. R. Holland Esq., M.P. in the chair, Mr. T. W. Cowan read a paper on Honey as Food. This paper will appear in our next issue.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

A series of meetings (as under) were held during the week ending Dec. 3. Rev. H. R. Peel had intended to address the meetings, but was prevented by illness, and Mr. T. B. Blow was the lecturer in his stead.—The first

meeting was held at Swaffham on Tuesday, Nov. 29. Harvey Mason, Esq. of Necton Hall, in the chair. There was a good attendance, including Rev. G. B. Winter, Miss Winter, Rev E. A. Winter, Mr. and Mrs. Harvey Mason, Miss Dolignon, Mrs. and Miss Smith, Rev. B. Boucher, Mrs. and Miss Boucher, Mr. Turnour, Mr. Herbert Day, Miss Day, Miss Caroline Day, Mrs. John Blake Humfrey, Rev. B. Smith, Rev. P. Gwyn, Rev. Montague Hare, Mr. Stead, &c. At the close of the address a considerable number of questions were asked, and many present made close examination of the various appliances that were shown. During a short interval in the lecture, the well-known form of that veteran bee-master, Rev. J. Lawson Sisson, appeared. He read a most humorous extract from an American bee paper, which convulsed the audience with laughter. Rev. J. Blake Humfrey was present, and after speaking of the object of the Association took the names of several present as Members.

On Wednesday, Nov. 30, a meeting was held in the Corn Hall, Yarmouth, attended by most of the local bee-keepers, including Rev. J. L. Sisson, Mr. S. Barge, Mr. Edmunds, &c. Owing to the fostering care of Mr. Barge, Yarmouth must up to the present time be considered the head-quarters of advanced bee-keeping in Norfolk. Through Mr. Barge's instrumentality the Tent of the British Bee-Keepers' Association has been twice to Yarmouth, though it has not yet appeared in any other town in the county.

The grand day of the week was Thursday, Dec. 1, at Norwich. At 2 p.m. a committee meeting was held. The committee being as follows:—Chairman, Mr. Harvey Mason. Mr. Samuel Barge, Mr. W. H. Bachs, Rev. A. F. Bellman, R. W. Cooke, Mr. Emms, Mr. J. E. Empson, Mr. C. E. Edmunds, Mr. W. J. Gidney, Rev. A. E. Booker Hill, Rev. J. Lawson Sisson, Rev. H. Smith, Rev. W. J. Stracey. Hon. Sec. Rev. John Blake Humfrey. Hon. Treasurer, Mr. G. H. Littledoy.

At 3 p.m. the inaugural meeting of the Society was held. J. J. Colman, Esq. M.P. in the chair. There was a large attendance including Constance Marchioness of Lothian, Mrs. J. J. Colman, Miss Colman, Mr. Colman, junr., Mrs. and Miss Blake Humfrey, Rev. J. L. Sisson, Mrs. Bellman, Rev. E. Harrison and party, Rev. W. Boddington, Rev. G. Selwyn, Mrs. Harvey Mason, the Misses Berneys, Mrs. Booker Hill, the Sheriff of Norwich, Miss Norgate, Mr. Ringer, Mr. J. Turnour, Rev. W. Harris, &c. The Chairman, after introducing the subject, called on Mr. Blow to address the meeting. After the address a considerable number of questions were asked by the Sheriff and others; and then the Rev. J. Blake Humfrey gave an account of the Associations. He remarked that to say at its commencement it stood third (in point of numbers of members) among the county Associations, proved the desire of the County of Norfolk to promote bee-culture. He then read the list of Patrons, &c. *Patron*: The Earl of Leicester. *President*: The Marchioness of Lothian. *Vice-Presidents*: The Bishop of Norwich, the Dean of Norwich, the Earl of Rosebery, Lady Caroline Kerrison, Lady Stafford, Lord Walsingham, Sir Reginald Beauchamp, Bart., Sir William Ffolkes, Bart. M.P., Sir Henry Stracey, Sir Willoughby Jones, Sir E. T. E. Lacon, M.P., A. T. Amherst, Esq., M.P., G. W. P. Bentinck, Esq., M.P., B. Gurdon, Esq., M.P., J. J. Colman, Esq., M.P., J. Tillet, Esq., M.P. Mr. Blake Humfrey gave a sketch of what the Association would be likely to do during the coming year. A resolution was carried that the Association is worthy of support and the proceedings terminated.

At 8 p.m. a meeting was held, Harvey Mason, Esq. in the chair, there being a fair and appreciative audience.

On Friday, Dec. 3, the final meeting was held at Litcham, there being a crowded audience; amongst others Miss Winter, Rev. Stratton Campbell, Rev. J. and Mrs. Orton, Mr. Farrer, Rev. W. Eaton, Mrs. J. Blake Humfrey, Rev. A. Booker Hill, Mrs. Booker Hill, the Misses Hill, Misses White, Randell, Chatton, Copeman and Carter, Mr. Gidney, &c. Algernon Digby, Esq., in the chair. The audience was most appreciative, and consisted mainly of just the class of people that the Association wishes to touch. A prize hive was offered by Rev. A. Booker Hill for the best exhibit of super honey taken without injuring the bees.

This meeting terminated a most successful tour, and there is little doubt but that Norfolk will take a high place amongst the county associations.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

A most successful bee-keepers' tour through Norfolk has just been completed with Mr. T. Blow for lecturer. The Rev. H. R. Peel most kindly promised to come into the county and give some addresses, but was unfortunately prevented doing so by illness. At his own expense he generously sent down Mr. Blow in his place. No better substitute could have been found, and I should like to give Mr. Blow a word of praise through your columns, and recommend him to other honorary secretaries who may be forming County Associations and casting about for a lecturer. He delighted every one by his lectures, and won a place in every person's esteem by his quiet, modest manner and disinterested conversations on matters of bees, various sorts of hives, bee-furniture, &c., &c. He is now about to leave England for Cyprus and Palestine in search of the bees of those lands in order to import them into this country. Together with all his friends, I heartily wish him success.—JOHN BLAKE HUMFREY, *Hon. Sec., Great Dunham Rectory, Swaffham, Dec.* 9, 1881.

CAMBRIDGESHIRE AND ISLE OF ELY BEE-KEEPERS' ASSOCIATION.

On Monday Nov. 28, a meeting of Cambridgeshire bee-keepers and others interested in the subject of bee-culture was held in the rooms of Mr. Haviland, St. John's College. Mr. Godfrey, Hon. Sec. Lincolnshire Bee-keepers' Association, Mr. Desborough, and Mr. T. B. Blow were present. It was proposed, seconded, and carried, 'That a Cambridgeshire and Isle of Ely Bee-keepers' Association be established.' A committee, with secretaries, treasurers, &c., having been chosen, the rules of the Society were drawn out and fully discussed, Mr. Godfrey giving a deal of valuable assistance in this important matter. The committee were authorised to have the objects of the Association printed and widely circulated through the country. Each Member of the committee undertook to look up the bee-keepers of his district and induce them to become members of the Society, and altogether a most promising start was made. Mr. Blow then gave a short address on the objects of the county associations, &c., and after the usual votes of thanks the proceedings terminated.

THE DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

This Society was represented at the Exhibition of the West of England Fat Cattle and Poultry Show, held at the Devonport Market on the 13th, 14th, and 15th December, 1881, by a collection of apicultural appliances being simply a beginning, on a small scale, with a view of having a large show and an important honey fair in connexion with this Society at their next exhibition. Mr. Wm. N. Griffin was present on behalf of the Bee Association. During the three days of the exhibition, many thousands visited the show; and if it can be judged by the questions asked, and the great interest taken in this department, bee-keeping is steadily advancing in the county of Devon. Several new members were enrolled on this occasion.

COUNTY ASSOCIATION FOR LEICESTERSHIRE.

Just a line anent the Leicestershire Bee-keepers' Association. Names come in freely from all parts of the county. There are many extensive apiaries in the shire, and there is a general feeling that an Association is a desideratum. The clergy are well to the fore in the matter, as is their wont when the poor man's benefit is concerned. I hope next month to be able to report the real existence of a Leicestershire B.K.A.—Edwin Ball, *Hon. Sec. (pro tem.), Waltham, Melton Mowbray, Dec.* 16, 1881.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.

The first annual general meeting of the County Armagh Bee-keepers' Association was held in the Town Hall, Portadown, on Monday. Mr. Wakefield Richardson having been moved to the chair, the report for the year 1881 was read and adopted. In it the committee state that the Association, which was founded in March last, now numbers fifty-eight members, and the subscriptions for the current year amount to 19*l*. It wisely advises members to pay attention to the packing with some non-conducting material of wooden frame hives, and to feeding their bees in early spring. It is further stated that since March the Association have held an exhibition of hives at Portadown, and one of bees, hives, and honey at Lurgan, and have given practical demonstrations with hiving bees at Newry, Lurgan, Narrowwater, and Newtownards. The report closed with an expression of thanks to Lord Lurgan, Mr. Richardson, of Moyallon, and the press for services rendered to the Association. In the course of the discussion on the report, Mr. M'Crum suggested that the Association should endeavour to ascertain the number of hives in the possession of members, and, if possible, of those in the county. The secretaries were directed to take the necessary steps to do so. The following were then appointed officers for the ensuing year:—President, Mr. Peter Quin; Vice-Presidents, Sir W. Verner, Mr. M. C. Close, M.P.; Major S. Blacker, Mr. J. Hancock, J.P.; Viscount Mandeville, Mr. J. N. Richardson, M.P.; Mr. R. G. M'Crum, J.P.; and Mr. St. J. T. Blacker-Douglas; Committee, Mr. W. Allen, Mr. J. Ussher, Mr. T. Best, Mr. G. Hazlett, Mr. Hamilton Robb, Mr. W. J. Wonfor, Mr. Andrew Donnelly, Mr. James H. Shaw, Mr. Wakefield Richardson, Mrs. Joseph Atkinson, Mrs. Alfred Armstrong, and Miss Fforde; Treasurer, Mr. T. G. Peel; Secretaries, Mr. G. Greer and the Rev. H. W. Lett, M.A. The members present then drew lots for a frame-hive, which was won by Mr. Thomas Best, J.P., of Portadown. Votes of thanks to the secretaries and to the chairman terminated the proceedings, which were most interesting and useful, from the discussions which took place, and from the assembling of bee-keepers from so many districts.

[We are glad to know that an attempt will be made in one county to obtain a census of hives, &c. If every county in the kingdom would adopt a similar course, much valuable information would be collected. Why can it not be done?—Ed.

ASSOCIATION FOR TYRONE, IRELAND.

A Tyrone Bee-keepers' Association has just been formed. The Earl of Ranfurly is our President, and Lady Ranfurly our Patroness. The Rev. H. W. Lett, hon. secretary of the County Armagh Bee-keepers' Association, is to deliver an inaugural lecture at Dungannon on the 28th, after which we hope by means of lectures throughout the county to show to bee-keepers the advantages of joining our Association, and adopting improved methods of bee-keeping. I hope next month to be able to report a considerable addition to our members.—Thomas S. Porter, *Hon. Sec. T. B. K. A., Cloghor Park, Tyrone, Dec.* 24, 1881.

THE BRECKNOCKSHIRE BEE-KEEPERS' ASSOCIATION.

An exceedingly interesting meeting was a short time since held in the Shire Hall, Brecon, for the purpose of establishing a Brecknockshire Society in connexion with the British Bee-keepers' Association. The objects of this society, as explained by the Rev. Herbert Williams and Rev. J. J. Evans (hon. secretaries *pro tem.*) are the encouragement, improvement, and advancement of bee-culture, as a means of improving the condition of cottagers and the agricultural classes, as well as the advocacy of humanity to the industrious labourer the honey bee.

The British Bee-keepers' Association was founded in 1874, since which several county branches have been established in connexion with it. The institution bids fair to solve the great social difficulty of providing a means of livelihood for those who are unable, from sickness or old age, to follow any laborious occupation. It was stated at the meeting that a labouring man in the county of Brecon had obtained from his bees this year two hundredweight of pure honey, the market value of which would be about 14*l*. to 16*l*.—no bad profits to enable the poor man to pay expenses of medicine, food, and clothing for his family. Another speaker mentioned that he had himself commenced his stock last year with a hive of bees for which he paid 15*s*.; in less than one year the 15*s*. has produced 3*l*.: few investments can be better than that. Our ingenious cousins have lately sent across the Atlantic a cargo of 81 tons of honey, stored in half a million of small boxes. Now there is no reason why the county of Brecon should not rival this and make itself famous as a land flowing with milk and honey. In addition to the great profits to be derived from bee-keeping, the greatest possible interest attaches to it as a scientific pursuit. Just as cattle and sheep are being bred so as to produce most meat and least bone, so we may imagine it possible in the course of time some fortunate bee-master may introduce to the world a breed of bees without stings, and with a prolonged proboscis which would enable its owner to penetrate into sweet recesses of flowers beyond the reach of the present race of bees. Bees are known to exercise a very important influence in the fructification of plants, fruits, and flowers. There are many flowers which would fail to reproduce themselves if it were not for the help of bees. As an instance of practical importance to agriculturists, it appears with regard to wheat that the pollen of one plant is conveyed to another plant by bees, and so a cross is introduced, and a more vigorous plant is the result; whereas if such plant simply reproduced itself without any admixture or cross, the produce would be deteriorated in quantity and quality. An improved system has been devised by which honey can be taken at any time without injury to the bees, and a very ingenious apparatus was exhibited at the meeting for extracting honey without breaking the combs, which might then be returned to the hive to be again filled with honey. Several bee-hives of the newest and most scientific designs were shown, as well as a fumigating bellows, gloves, veils, artificial combs, &c. Should the Society's funds allow, an exhibition will be held in certain districts in the county, where an expert from the Parent Society will attend; and, in a tent specially adapted for the purpose, will exhibit the most skilful method of handling bees. By means of a transparent curtain across the tent, the exhibitor will show how bees can be driven from one hive to another, the queen secured, and other similar feats accomplished.

Lord Tredegar has kindly consented to act as President, and among the Vice-Presidents are the Lord Bishop of St. David's, the High Sheriff of Breconshire, the Members for the County and Borough, the Ex-Mayor of Brecon, and J. P. Gwynne-Holford, Esq.

KENT BEE-KEEPERS' ASSOCIATION.

As my communication to you last month drew attention to the important question of 'how the increasing demands upon the time and capabilities of the Secretary of a County Bee-keepers' Association are to be met,' it may be of interest to some of your readers to know how the matter has been subsequently dealt with by the Association with which I am connected. From the first moment that the subject was brought to the attention of the Committee, it has not ceased to engage their careful consideration; and the deliberate conclusion that has been arrived at by a numerous body of men of at least average intelligence may fairly be regarded as the best possible solution of the matter, so far at least as the circumstances of our own Association admit of. The three years' probation of a young Association is generally admitted to be a critical time, and if at the end of that period there is satisfactory evidence that its growth has not been over-stimulated, but that the interest of the members is maintained, and the general condition one of vigour, it becomes the duty of those to whose charge it is committed to carefully arrange the conditions for a lengthened career of usefulness.

The question has been looked upon in the light of a new departure, but the Committee, having regard to the awakening interest in the objects of the Association, have not hesitated to commit themselves to the increased expenditure involved in providing a moderate remuneration for the services of the Secretary, 'relying (to use the words introduced into their annual report) upon the active endeavours of all the members to increase the prosperity of the Association so that the additional charge may not prove burdensome to its funds.' The sum to be placed at the disposal of the Secretary for the current year is 50*l.*, but subject to the contingency of disappointed expectations. During this time valuable experience will necessarily be acquired as to the capability of the Association to provide remuneration commensurate to the services rendered.—JESSE GARRATT, *Hockenden, St. Mary Cray, Dec.* 28, 1881.

STINGING OF QUEEN-BEE — WILDMAN THE BEE-MASTER AND GILBERT WHITE — IDIOT BOY AND BEES—QUEEN BEE JELLY—TUSSILAGO FRAGRANS.

The above subjects are sufficiently interesting to deserve further investigation, though they were often discussed at the Canterbury meetings of the East Kent Natural History Society, as briefly reported in the *Quarterly Journal of Microscopical Science*, April and October, 1874, and July, 1872. The late Major Augustus Munn often brought to the forenamed society many queen-bees, and pitted them together in pairs, when they fought like gamecocks till one was killed. We saw them poke out their stings during the contest, but could not so well see what the Major declared to be the fact, that they were exclusively directed to the spiracles (breathing orifices) of the antagonist. He insisted that it was only thus that they could sting each other, and that they could not sting the human subject, as indeed seemed true in several trials in which the queen-bee failed to sting even the delicate skin of ladies, though she would quickly sting another queen-bee to death. We plainly saw her, when irritated on the human hand, protrude her sting, and eject its venom, but without at all penetrating the skin. In fact, the queen-bee could not, or at least did not, sting the delicate hand of women. Surely this question deserves further inquiry, for I know, from painful experience, that queen-wasps can and will sting man.

The question is curious in relation to a passage concerning the exhibitions of the famous bee master, Thomas Wildman, and to the Letter LXIX. to Daines Barrington, in Gilbert White's *Natural History of Selborne*. Major Munn, describing Wildman's performances with his bees, and handling them rudely with perfect impunity, said that his pretended command over them was one of the wonders of the time, which excited the interest of the king and nobility, and an offer of a large reward for the secret. But Major Munn asserted that it was simply the exclusive use of queen-bees; and then he put some of them—I think seven or eight—into the hands of myself and others, and truly there was no stinging, though we saw the stings out and at work. But there are so many mysteries about bees, that we can never give too much attention to them. Here is one, to which the Major's explanation is by no means applicable. In the letter above quoted, the good old naturalist of Selborne describes an idiot boy, who used to suck the live bodies of bees, keep lots of them alive between his shirt and skin, and even overturn their hives to get the honey. Yet he had never the least apprehension of being stung. 'Had] his capacity,' wrote White, 'been better, and directed to the same object, he had perhaps abated much of our wonder at the feats of a more modern exhibitor of bees, and we may justly say of him now

> "Thou,
> Had thy presiding star propitious shone,
> Shouldst Wildman be."

Here, then, is an explanation of a passage in Gilbert White which has been ignored by his many commentators. There is a quarto treatise, with plates, on bees, wasps, and hornets, published with Wildman's name, in 1768, eight years before the date of White's letter.

As to queen-bee jelly, as nothing satisfactory as to its chemical and histological characters could be found in the books, I undertook the examination of several samples, which were supplied by Major Munn. He said that he agreed with the eminent entomologist, George Newport, that this jelly, or bee-bread, is simply 'pollen paste.' But my experiments proved that it is not a mere collection from plants, but in reality, an animal product, or secretion formed within the insect, as chyle is from food of vertebrates. In short, queen-bee jelly, though containing a few perfect and some disintegrated pollen grains, is mainly a substance affording an abundance of Mulder's protein, in a molecular base, which base is morphologically like that which I have long since described and figured in animal chyle, as may be seen in the English version of Gerbro's Anatomy. Therefore this queen-bee jelly would seem to be just such a nutrient material as is best fitted for the insect larva, like milk for young mammalia, and the ingluvial secretion of certain birds for their nestlings.

Tussilago, or Petasites fragrans, grows wild in shady and damp waste places, and flowers abundantly, with a pleasant scent, very early in the year, before the crocus blooms. I have seen the honey bees, tempted out by a few fine days at that time, busy among the flowers of this Tussilago, when no other plants were flowering. This is a robust, herbaceous species, that will flourish even in spite of persecution, as it has done for many years on the north side of Canterbury Cathedral.

The foregoing notes are submitted to the *Bee Journal* in the hope that they may receive some elucidation therein. Two of them are particularly interesting, in respect to the most excellent and popular book on out-door natural history in our language; and, indeed, anything relating to the structure and economy of the hymenoptera may be curious and important.—GEORGE GULLIVER, *Canterbury, December* 5, 1881.

[One would scarcely have supposed Major Munn capable of suggesting, to say nothing of seriously asserting, that Wildman's extraordinary performances were conducted with queen-bees only, since he, the Major, well knew, as indeed he often showed, that queens never come into contact without fighting.

How the death-blow is given in a royal combat we are unable to say; but invariably, in all the combats we

have seen, the winner of the fight has had her sting directed against the underside of the thorax, and appeared to be trying to get her sting into the leg-joints, as the most vulnerable parts assailable, and in no case was an attempt made to sting the abdomen, in which the spiracles are located.

In manipulating, we have often found it necessary to hold a queen between our lips, when, if she was kept straight, there was no sensation of stinging; but if held so that her stinging end was curved towards the mouth, we have several times felt the effect of her sting and of the poison in the lower lip. From experience, we think a queen cannot sting, except her body be curved round the object to be stung, thus bringing her curved weapon into play. It may be that the shape of the sting is protective to her; were it straight, it might be too freely used, often causing death. Has any one ever endeavoured to detect a difference (chemically) between the sting-poison of a queen and a worker? The latter, as most people know, is sharp and painful; but every one has not been stung in the mouth by a queen, and it is our impression that her sting-poison has a peculiarly paralysing effect, somewhat in the nature of the juice of the plant Tarragon. A spray of Tarragon chewed has a peculiar paralytic effect upon the unwounded tongue. Is it possible that a similar effect (fatal to a bee) may be produced by the ejection of the poison amongst the articulations under the thorax?

We hope many will contribute their ideas on the subjects revived by the celebrated author of *Gullivieri*, that we may get nearer the earnestly sought truth regarding them.

Of royal jelly we know little beyond its uses, but Dr. Donhoff, an eminent German authority against whom Mr. Cheshire a year ago shivered a feeble lance, once gave a report on its properties, which was translated and published in the *American Bee Journal* twenty years ago, and which, in the hope it may be useful, we here append.—Ed. *B.B.J.*

'The royal jelly, with which embryo queen-bees are fed, contains animal albumen and fibrine. At least nine-tenths of the mass consists of these. This is evident from the following tests:—

'1. If the jelly be treated with ether and water, the pure substance alone will remain. This is whitish, translucent, and elastic, having all the appearance of coagulated albumen and fibrine.

'2. If the jelly dries up in a royal cell (as is the case, particularly in queenless and drone-producing colonies where the bees undertake to rear a queen from a drone larva, which invariably perishes in the process) it becomes transformed into a tough, yellow, transparent mass, like that into which protein substances are converted.

'3. If the wax and sugar be extracted from the jelly by ether and water, and a solution of sulphate of copper be added to the residuum, oxide of copper will be precipitated by caustic potash, but the solution will retain the blue colour of the salt.

'4. The mass remaining after treating the jelly with ether and water will be completely dissolved by a solution of caustic potash, assuming a faint yellow tinge, and on the addition of muriatic acid, will emit an odour resembling that of sulphuretted hydrogen.

'Ingredients present in minute quantities only are:—

'1. *Wax.*—When I treated the jelly with ether and water there remained an evaporation by heat, a white mass having an unctuous feel, and which, when warmed, rendered paper transparent and glossy.

'2. *Sugar.*—When the jelly was digested in water, holding sulphate of copper in solution, the addition of caustic potash produced a brownish yellow precipitate.

'3. No trace of pollen or starch could be detected by employing the usual re-agents. The presence of albumen and fibrine shows that the jelly is an animal secretion, and should be designated by some more appropriate name.

'It seems probable that the secretion is effected by a gland in the gullet or œsophagus, since jelly is never found in the stomach of the bee.'

BRITISH BEE-KEEPERS' ASSOCIATION.

County Bee-keepers' Associations: their Objects and Development.

Discussion on Rev. H. R. Peel's Paper.

Rev. J. Blake Humfrey said he had listened to Mr. Peel's paper with much pleasure, and it had resolved many questions respecting Associations which had troubled him. His principal difficulty, however, was how the cottager was to dispose of his honey after the bees had gathered it. He had had a conversation with a chemist and bookseller in a town quite close to his place, who told him that it was quite impossible to sell honey; that the supply was greater than the demand. Well, upon that he (the speaker) thought what was the use of getting up a County Association if they could not get rid of their honey. He had been talking with a great many gentlemen in the room from whom, and from Mr. Peel's admirable address, he had gathered that it was perfectly easy to get rid of honey if it was in a portable form. But there was another difficulty: they got up County Associations with the two-fold object of advocating a more humane and intelligent treatment of the honey-bee, and of bettering the condition of the cottagers, by presenting inducements to them to devote themselves to bee-culture. It was the cottager class they had to deal with, and his county was purely an agricultural one, where the wages of the cottager varied from 10*s.*, 12*s.*, to 15*s.*, and not more; and then he had his wife and children to look after, and a great many expenses besides, so they must try to put the scheme in a really practical form, so that the cottager could take advantage of it. If they went to the cottager and said, 'In the first place, you have to subscribe 2*s.* 6*d.*, then you have, in order to get your honey to the market, to make some nice boxes for yourself; and then you have to get some most beautiful glass jars,' the cottager would begin to say, 'that there are so many expenses to be incurred, that unless you give me 5*s.* I cannot do it at all.' At the same time he (the speaker) must say that Mr. Peel has answered these questions very satisfactorily in noting the number of inducements held out to the cottager. He should like, however, to get more information as to the nature of the honey which was in the market now, not in Lincolnshire, not in London, where the British Bee-keepers' Association came in, but in a county like Norfolk.

Rev. E. Bartrum said the question of the sale of honey has always been a difficult one, but it seemed to him that the difficulty in that respect was less this year than in any previous year. He had a friend who had been a bee-keeper for three or four years, and this year he had been most successful; the quantity of honey he had to sell was 800 lbs. He wrote to him (the speaker) and asked how he should sell his honey; he replied that if he were in his place he should apply to the experts of the Association and ascertain from them whether they would be willing to act as agents, and he should also send the honey to the neighbouring towns and offer it for sale at the large grocery establishments. He had since heard that his friend had sold all his honey. He was persuaded, from the observations which fell from Mr. Peel, that if a person were to take proper means his honey could easily be sold. He knew a grocer in his own town of about 4000 inhabitants, who purchased 100 lbs. of honey from a man who lived about four or five miles away, and he was the only bee-keeper in the neighbourhood. If 100 lbs. of honey were required by a grocer in such a small place, the demand in larger towns must be correspondingly larger. Of course, the quality was a great point, and the sections that were becoming so popular sold with the greatest rapidity. He mentioned to a friend that evening an incident which occurred at the show at South Kensington. A man came forward and thanked him for what he had done at Derby. He

said he did not know what he had done, but he should be glad to hear. The man said, 'I was selling my honey at 2*s.*, you came forward and said, "You are putting too low a price on it; as it is so early in the season I would charge 2*s.* 6*d.* for it." I immediately advanced my charge and sold my honey, so I am indebted to you for putting more than I expected into my pocket.' He did think that, as an Association, they might consider whether they could not appoint half-a-dozen experts or agents in different localities. He thought every association might be advised to appoint persons who, for a certain percentage, would undertake to sell the honey. It happened, in the case of their Central Association, their experts were becoming so busy and prosperous that they could not be expected to give much attention to the sale of honey. He congratulated these gentlemen on their position, and it was impossible to find fault with those who had found the Association a means of prosperity, but at the same time it was most advisable that they should break down anything in the shape of a monopoly in the sale of honey. He did not think that the matter should be in the hands of one or two persons. It would be a great advantage if they could appoint half-a-dozen persons in London who would undertake, for a small commission, the sale of honey; and also persons in each of the commercial centres such as Birmingham, Manchester, and Liverpool, whom they could ask to sell the honey. He thought they might promote the sale of honey a great deal by the way in which they introduced it into their own homes. Since he had become a bee-keeper he had made it a custom to have honey on his breakfast-table, particularly so if there were friends visiting him, so that they might enjoy the honey, which they generally did, having it before them in an attractive form.

Mr. Garratt said that Mr. Peel referred in his paper to the difficulties which County Associations experienced in consequence of the want of funds. He agreed with him that it would not be a good thing to assist County Associations in that way. To ask for funds from the Central Committee, from whom they already received so much valuable assistance, would tend to demoralise County Associations. The less assistance of that kind given the better. With reference to the practical work which fell upon the Secretary of the County Associations, which were all at present young, he should like to remark that these Associations might be carried on more successfully, and developed sooner, if care were taken to appoint a proper Secretary and Assistant-Secretary, who could carry out the work energetically. These Bee-keeping Associations had shown that there was a great deal of vitality in the movement; but to reap the benefits which were laid before them, the work should be thoroughly organized and carried out more rapidly than it was. No doubt in the early days of the Association, it was necessary that there should be a large amount of voluntary help; but these Associations must, in his opinion, assume more practical shape ere long. Here and there there might be individuals so placed and so circumstanced that they would give a large amount of their time to the work; but they must be an exception, and in due course they would have to contemplate—and he spoke with the knowledge he had of the Association with which he was connected—the means of carrying forward these Associations more energetically than hitherto. He should deeply regret if the movement came to a standstill—that was to say, ceased to advance; because if it ceased to advance, there would be every probability of its falling back again.

Mr. Baldwin said that the remarks of Mr. Bartrum would lead one to suppose that honey was a drug in the market. He could say with confidence that it was not. Where it was not sold it was because of the exorbitant prices demanded. If the honey was put in a proper form, and a reasonable price asked for it, he did not think there would be the slightest difficulty in disposing of it.

Mr. Blow said that the great cause of honey not selling was that too much was asked for it. Now that bee-keeping was becoming a business, of course only a fair profit must be required by the producer. This year he had lots of applications for honey; and not being able to supply it, he put himself in communication with one who had generally a large quantity. In one or two cases he had succeeded in bringing about bargains to the extent of one or two hundredweight. One hundredweight and a half was sold at 10*d.* per pound. He thought the highest price was 1*s.* 1*d.* for comb honey.

The Chairman (T. W. Cowan Esq.,) said he was sure they had listened with the greatest attention and pleasure to Mr. Peel's paper; they were indebted to him for it, and they were also indebted to him in a great measure for organizing these County Associations. Mr. Peel joined the British Bee-keepers' Association at a time when it was nearly shipwrecked; but he was the means of re-starting the Association. He told you there were about twenty members of the Association at that time, and he (the Chairman) was one of those who stuck to the sinking ship; and it was through Mr. Peel's captaincy that the ship rose again to sail in smooth waters, as they were doing now. The number of members throughout the country, Mr. Peel stated, was 1476, and that 1483*l.* had been expended in bee-keeping throughout the year; that was rather a remarkable sum to spend by the Bee-keepers' Associations, it was an expenditure of about 1*l.* per member. They knew that many of the subscriptions were only 2*s.* 6*d.*; and that therefore there were many gentlemen in the country who were sufficiently interested in bee-keeping to subscribe very much more than their legitimate amount. Mr. Peel mentioned there was a difficulty in getting cottagers to use moveable-frame hives. He found in his neighbourhood a prejudice against them, but if they could get one or two cottagers to adopt moveable-frame hives and succeed with them, they would find other cottagers likely to follow the example. In respect to one cottager in his own neighbourhood he might mention that he began two years ago when the Bee Tent came down to the Horsham Flower Show; and he (the Chairman) was glad to say that he had adopted the frame-hives. Since that time he had made his frame-hives pay very well; and this year he has bought quite a number of hives. That man came to him some time ago, and brought him the money to procure him an extractor. He was able to pay for all the apparatus that he used from the profits of the honey which he had sold. He has also been able to buy nearly all the bee-books he could lay his hands upon. That was a good example of what a cottager can do. With regard to the experts it was true they required them; but it was not every one who could make an expert, as it was necessary that these experts should be able to speak. There were many cottagers who could drive bees and transfer bees from straw skeps to moveable hives: but there were few who could speak of the process to other people. It was necessary, therefore, to get experts for these County Associations who could speak. A great many awkward questions were sometimes asked at the shows; Mr. Baldwin and Mr. Blow would tell them that very queer questions indeed were put. With regard to County Shows he thought there was no difficulty in selling honey at these; and if the shows were supplemented, as they had been at Lincolnshire, by a honey fair to which members were invited to send their honey if they did not dispose of it at the shows, the shows and the fairs together could be made remunerative to the members. In Lincolnshire this year all the honey not sold at Louth was sent to Grantham; and he believed it was all sold for good prices. He was a producer of honey; he certainly produced more honey than he could consume. His honey went to different shows, and he very seldom saw it back. His honey went from Louth to Grantham; he had since learned that it had sold readily, and he ex-

pected to be rewarded by receiving a cheque in due time. With regard to the cost of the hives they heard a paper read a few months ago by Mr. Lyon on a cheap hive for cottagers. Mr. Lyon showed that cheap hives could be made out of boxes for 1*s.* 6*d.* And if cottagers liked they could buy frames and get a carpenter to make a hive for 4*s.* or 5*s.* Then with regard to the crates the cost of these was about 2*s.*, or a little more, and the cost of the jars was about 4*s.* per dozen; that would be 6*s.* for the crate and the jar. He (the Chairman) had on the table specimens of crates of honey, which were sold for 1*l.* They could make a stipulation with the purchaser that if the crates and jars were returned they would receive 2*s.* for the crate and 4*s.* the jars, and these could be used again; if they were not returned the cottager had his money, and need not lose anything. A large quantity of honey sent to the different shows was sent in large supers, and a great deal of it was smashed on the way. The honey is usually sent closed up, and railway porters, not knowing that it is such a damageable article, knock about the boxes and destroy the honey. If it were sent in small packages in boxes, such as those shown, open on both sides, with glass covering, so that porters could see what the crates contained they would be more careful in its transit. In the case of these crates if the purchaser saw on their arrival that any of the jars were broken he could refuse to take the crate in and make the railway people responsible. These crates would stand a good deal of knocking about. The Chairman concluded by proposing a vote of thanks to Mr. Peel for his able and interesting lecture; he was sure they were indebted to him for the great trouble he had taken in preparing it.

Mr. Peel said he could assure them it had been a pleasure to him to prepare, and read that paper, more especially as he had not been able to do anything for the Association lately owing to a protracted illness. He had a piece of good news to tell them, and that was that Mr. Henderson had volunteered to act as librarian, and would communicate through the *Journal* in what manner he proposed to make the Library accessible to the Members. That appointment would be a great advantage to the Society, and he hoped the Library would go on and prosper. Mr. Jonas has intimated his willingness to look after the collection of hives and other apparatus in South Kensington Museum. If they could make that exhibition attractive they would probably induce the South Kensington Department to recommend their Diagrams to the Schools of Art which were scattered throughout the country. Mr. Blake Humfrey in his remarks said he should like to know what sort of honey was produced in Norfolk. He could easily ascertain if it were good by sending samples of the honey to Mr. Cowan, who would submit it to his friend, Mr. O'Sullivan, for analysis. Mr. O'Sullivan, of Burton, was undertaking a series of experiments in the analysis of honey, and if they sent him any specimens he would tell them their constituent parts.

This closed the discussion, and a vote of thanks to the Chairman brought the proceedings to a close.

'Wintering Bees.' By Thos. W. Cowan, Esq.—We have been favoured with a copy of the second edition of Mr. Cowan's excellent reading on the above subject, revised and enlarged. It is a most useful paper, containing much valuable information, and we confidently recommend it.

Ligurians for the Cape.—On Tuesday last a stock of Ligurian bees was put on board the *Kinpauns Castle* steamer (one of Donald Currie and Co.'s boats) by Mr. W. J. Pettitt, of the Apicultural Institute, Dover. They are for the Botanic Gardens, Cape Town, Cape of Good Hope, and were consigned to Messrs. Divine, Gates & Co., members of the Acclimatisation Society, Adderley Street, Cape Town.—*Dover Standard, Nov.* 12.

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

AN APPEAL TO HAMPSHIRE.

What a pity it is that Hampshire does not provide itself with a County Bee-keepers' Association! From inquiries which I have made, it seems that there are country gentlemen and clergymen in abundance who would give their support to such an Association if any one could be found who would take the trouble to start one. Surely some philanthropic individual can be found in Hampshire who will exert himself to impart to the cottagers of his county the means of increasing their incomes, which are open to those of the surrounding counties of Wiltshire, Berkshire, Surrey, and Sussex? Now is the time of year for organization, so that the campaign may be opened in the spring of 1882.—Herbert R. Peel, *Hon. Sec. B. B. K. A., Abbot's Hill, Herts, Dec. 19th*, 1881.

P.S.—Hampshire will soon be the only southern county without a County Bee-keepers' Association, as I hear that the men of Somersetshire are bestirring themselves.

COUNTY ASSOCIATIONS ANTICIPATED BY 'AN ANTIENT BEE-MASTER.'

At a time when simultaneous efforts are being made to establish County Associations for the promulgation of bee knowledge and the education of the artisan and labourer in the art and mystery of bee-keeping with a view to the improvement of their income, it may not be amiss to give a quotation from the preface to a work entitled *The Ancient Bee-master's Farewell*, published by John Keys in the year 1796, which seems exactly to point to the proceedings now being taken by those interesting themselves in the foundation of these County Associations.—J. G. Desborough, *Stamford.*

'The most likely means to establish the Bee Art, I believe, will not be accomplished without the patronage of *Agricultural Societies*; namely, the encouraging a proper person or persons to exhibit in the *bee season* the most *improved method* through the chief market towns of the kingdom. The person must be capable of explaining the processes, and have with him the necessary instruments.

'I would also *recommend* this employment to any ingenious young man, properly qualified, provided with the apparatus, as a practice that most likely would turn to much advantage; taking care *not* to introduce tricks and fancies, as some have done, to the *destruction of multitudes of bees*, instead of exhibiting any real improvements.

'Or if *such* persons resident in villages would qualify themselves, they might, even in their limited stations, exercise the art to their own benefit and that of the neighbourhood by performing it at a *stated rate.*

'*Rural curates* might considerably augment their too frequently *niggardly* stipends by the cultivation of bees, and act at the same time consonantly with their clerical profession, as it is an innocent amusement, both *healthy* and *profitable*.

'Farmers and others who keep numerous stocks of bees cannot be supposed to attend so minutely to every particular as those who have not many, and have more leisure; yet in this, as well as in all the other articles of husbandry, the greater the care bestowed, the greater the return that usually follows. Besides, most of the operations on bees are to be performed in the evening, or early in the morning, and therefore will not interfere with more important business.'

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION'S PROPOSED LIBRARY.

I think that this is about the best suggestion that has been made lately, and hope that it will receive the hearty support of all members of the Association. But, sir, all of us are not the fortunate possessors of bee books other than those in ordinary use, as in my own case; for the 'rich and rare' in bee books, as in other departments of bibliography, is only to be attained by long and well-directed search; still, all can contribute, if not books, money, which will also be needed to found a library worthy of the Association, and I am sure that Mr. Godfrey will be as pleased to receive donations for this purpose as books.—J. W. Measures, *Long Sutton, Dec. 14th*, 1881.

CYPRIAN BEES.

In reference to some notes on Cyprian bees in November *Bee Journal*, I wish to state that I have had a stock of these bees, bought of Mr. Hale of Suffolk last March. I have watched them through the season, and have found them quite inoffensive; never having noted one viciously using its sting.

I want to know what, if any, distinguishing characteristics there are between Cyprians and Ligurians. —E. Hall, *Sheering, Harlow*.

HONEY PRESSER.

I saw in your last an article by Mr. Russell, Pettinain, on a honey presser, which he had from Mr. Watt Smith, of Carluke, whom he supposes was the inventor of it. May I inform him that I invented it over thirty years ago, and have had it in use ever since, though I have made several improvements in it since then? Two years ago I invented a small lever for filling the cylinders before pressing, so that there is not so much screwing as formerly. It divides the honey into two distinct classes.—Adam Orr, *Crossford, by Lanark, N.B.*

NEW TUBULAR FEEDER.

I beg to call your attention to a *Tube Feeder*, designed specially for use in winter when stocks are found destitute. It renders most efficient service, being far superior to feeding with solid sugar in any form. It consists of a glass tube, 4 in. by ½ in., being convenient, holding half a fluidounce of syrup, a small hole punctured at bottom, and cork at top, put through cover, board, or quilt, between combs, just within the border of cluster. Bees take food as required. If attended and filled every day, it ensures the safety of stocks from few days' neglect, which might prove fatal. This was devised by me last winter to meet the trial of that severe frost, which found some of my stocks in poverty.—E. Hall, *Sheering, Harlow*.

NEW ZEALAND FLAX.

I have been interested in the recent correspondence on this subject, hoping to find some useful suggestion on its cultivation, &c. I have myself grown the plant for the last four or five years, but have not succeeded as yet in flowering it. I obtained the seed from Messrs. Hooper & Co., Covent Garden, and had no difficulty in raising the seedlings with ordinary treatment in a greenhouse, but I find the readiest method of propagation is to detach the offshoots from the root (once you get a plant to work on). It is a slow-growing plant, and the greatest length of leaf I have yet obtained is six feet. It makes a very pretty plant for the centre of a small bed in summer, but in our latitude it is only half hardy, and always perishes in winter. Possibly the conditions are different in the south of England. I send you by post to-day an offshoot taken off in April this year, from which you can judge of rate of growth, &c. I think it will grow easily, although it will be rather crushed in the transit.—'Dix' Leslie.

Let me thank you for the packet of seed of *Phormium tenax*. Do not let any of your friends indulge in the idea of feeding their bees with the flowers of this plant. In the first case it will be several years before the plants raised from seed attain any size, or reach that period of maturity which is evidenced by the production of flowers. I have never yet flowered it, and my plants, before the occurrence of the winter of '79 and '80, were of large size. The frost of these seasons utterly destroyed them. Those who can find room for 'Phormiums' will find groups of it effective in their pleasure grounds, but until we change places with New Zealand we shall not be able to grow it profitably for bees. We must multiply early-blooming flowers for our bees; the delight they have in the vernal flora is unmistakable; and again in autumn, when there are no fragrant bean-fields, when the white clover has faded, and the limes have changed flower into fruit, bees then seek eagerly for nectarous flowers; and all who care to study the wants of the occupants of their hives should provide, as far as possible, suitable plants, and save the little creatures from long and weary flights, in which many lose their lives, and all waste precious time.—W. Ingram, *Belvoir, Dec. 16th*, 1881.

GREEN HONEY.

In reply to query No. 430, it is said that both gooseberry and sycamore blossoms yield honey of that colour, viz., sea-green, and of very superior quality. (*Vide* Pettigrew's *Handy Book*, p. 28.)—H. S. Y.

GREEN HONEY.

Referring to query 430 in your December Number, I find that honey gathered here has *sometimes* a very slight greenish hue; and when I was a lad, living at Clapham, four miles south of Kensington, the honey gathered there had the same hue. I shall be glad if other bee-masters near London or large smoky towns, such as Manchester, Bradford (Yorkshire), or the Black Country, will give their experience, as I have attributed the colour to the dirt of the atmosphere mixing with the pure amber colour of the honey. The hue was absent this year, and this I attributed to the much clearer sky and absence of long-continued east wind, which brings us London smoke. The source of bee food about here is fruit-blossoms—almond, apple, pear, thorn, lime, horse-chestnut, many flowering shrubs, and ordinary garden flowers. In reference to your correspondent with the 'Spiteful Neighbour,' may I ask why, if I trap my neighbour's cat, I can be punished, the spiteful neighbour, who traps your correspondent's bees, cannot (as you suggest he cannot) be punished also?—J. W. H., *Phillimore Gardens, December* 24.

I notice that some correspondent asks you this month about green-coloured honey. I notice that the honey I have at Woodford in the early part of the season is green. The past has been the best season I have yet had for honey; but this is not a good neighbourhood for it, I think. With thanks for your interesting *Journal*.—WILLIAM SMITHER.

A SAFETY HIVE WANTED.

[Or, more gentle bees.—Ed.]

Of course, no one but a lunatic, amongst the multiplicity of hives in the market, would be unable to find one to suit him; nevertheless, I must plead guilty in that respect. And why? Well, my bees must be very different to those written usually about in the *Bee Journal*. One hive especially is smoke-proof. All the summer no one could go within twenty yards of it with impunity. I have seven stocks, and to use the extractor to them, stirring them up every few days, would be tantamount to banishing every one from the garden (an acre and a half) all the summer.

My first 'kick-up' every season is putting on supers, smoke or not, as you please; the moment the centre hole (three-inch) in crown-board is uncovered, although only for a moment, the rush at one's veil and gloves reminds one of the sparks from the mouth of a rocket. Then, when filled, to put an empty super between it and the stock is something desperate, during the few moments this operation occupies one is covered by a swarm of angry bees. As to taking a full section from the centre of a crate to substitute an empty one, I should like to see any one do it. Then, in the autumn comes another desperate affair: hardly a second is occupied in taking off a super and putting it on a board set ready with a bee-trap, but in that short time the rush of angry bees from the bottom of super and top of hive is something frightful. And you must understand for days after any of these operations, woe betide anyone venturing within a range of thirty yards! The hive I want is one in which all these operations could be carried out without disturbing a bee. I would have a crown-hole of six inches at least, closed with a zinc slide. Before removing the winter covering from this hole (I use old cocoa matting), I would push in the slides. I would then put on my super, which should have a bottom of thin pine with a corresponding hole to that in the hive top, withdraw the slides, and the job is done. When full, the slide is again pushed in, a piece of zinc pushed between super and hive, empty super put between, zinc withdrawn in both cases, and all is right. At the end of the season the zinc plates again pushed under super, zinc slide in crown-board pushed home, super carried away and a bee-trap fixed over the hole in top, and all is complete. Thus all these operations are performed without the escape of a single bee.

Well, sir, in endeavouring to carry out this principle with the 'Irish Hive' you sent me in the spring, I was unfortunate. The removal of the dummy of wooden foundation between hive and honey store in rear, in order to replace it with queen-excluder diaphragm in the spring, would never be tolerated by my 'demons;' so in its place I fixed a partition of two $\frac{3}{8}$-inch pine boards, with just sufficient space between for a zinc divider to work easily. In these boards was an opening eight inches wide, and down to the floor-board within two and a half inches. When I wanted to use the honey stores at back, I filled it at my leisure with sections, made all secure, drew out the plain excluder, replaced it with the long-holed queen-excluder zinc you sent me, and congratulated myself on having done all without exciting a single bee.

Through a window I had cut in the upper part of back honey store, I observed that work was at once commenced in the sections. In due time these were ready for removal, the queen-excluder divider was quietly withdrawn, the plain one put it its place, and a bee-trap placed on the top of honey store. Next day the whole interior was removed, every bee having speedily and quietly left by the bee-trap, and through one of the long apertures between the frames left open for that purpose before dark the previous day. After some difficulty, for there was some drag at the bottom, I lifted out one frame, and immediately a most peculiar smell was observable, and all inside woodwork was of a reddish-yellow tint. I then saw, to my dismay, that the bottom of the chamber was covered with dead bees in a decomposing state. I got out the remaining frames of sections, all beautifully filled, except where the frames dipped in the dead bees, and then cleared out the dead, which filled a quarter of a peck, with half a pint to spare. Of course, I was very vexed at this destruction, especially as they were all worker bees. Can you suggest the cause, and help me with advice on the matter? Do you think the mischief was caused by the queen-excluder zinc not going completely down to the

floorboard? You see there were two and a half inches of plain board there! Could it be the bees got down there, and were unable to find an exit? I cannot think so, there being an abundance of space under, between, and around the ends of frames.

Favour me with your opinion in next month's *Bee Journal* and oblige.—JACOB ROBINSON, *Beyton Green, Bury St. Edmunds, Nov.* 15, 1881.

[The cause of the disaster scarcely needs explanation: the bees were suffocated by the plain zinc divider being thrust in, thereby shutting off the means by which they usually passed from the rear of the hive, and leaving only the bee-trap as a means of escape. No provision was made for the admission of air while the rear of the hive was being cleared, and the bee-trap being a means of exit only, through which the bees were constantly passing, no air could get in through it, and the rear of the hive became a 'Black Hole of Calcutta,' the dying bees giving forth a reeking sweat that discoloured the wood as described.

It would be very easy to adapt the Irish, or any, Combination hive to meet the requirements pointed out. Indeed, had our correspondent made a three-inch hole in the floor-board or hive-side, through which ventilation could have been given when the bee-trap was put on, it would have been a perfect arrangement. But after all, why keep such irascible bees, if they are naturally so? If, however, the hives are crowded too closely, or our correspondent a little impatient in dealing with them, it may not be all their fault. Perhaps he will kindly give some particulars of breed, and position of hives, that may help to account for their savageness.—ED.]

[The foregoing having been crowded out of the December issue we sent Mr. Robinson a printed 'proof' of the same in reply to his inquiry whether the matter had been overlooked or lost, and he has further favoured us as follows:—]

Many thanks for the 'proof' that my communication was not mislaid.

Your explanation of the death of the quarter of a peck of bees I think will hardly meet the case, as these sections were not taken till the end of September, and on the day I took them I question whether there was a quarter of a peck of live bees in the honey chamber altogether, for I chose it specially for the reason that so few bees were there. Then assuming your solution to be the correct one, the bees could not have been dead more than sixteen hours. Now these were in such a decomposed state, and the stench so bad, that I fully imagine they had been dead for weeks rather than hours. Again, the fact that the sections were filled with beautiful comb but only down to the level of the dead bees, nothing below that, points to the conclusion that the mischief was done before comb-building commenced. If the destruction of bee-life only dated from the previous day, would not the sections have been found full to the bottom? I can quite understand what is your opinion of a bee-keeper who has such a quantity of dead bees in his hive for weeks without knowing it: but, perhaps, if your gardener, and yourself and family were driven from your garden for two or three days every time you opened a hive, you would be careful to do so as seldom as possible.

Certainly, I shall be very pleased to give every information respecting my bees as to origin and position of hives.

They originated from the deservedly noted 'Fairlawn' apiary. You sent me the swarm on the 20th of May, 1880. This is still in the Woodbury hive you sent it in, and is in course of gradual removal to the most distant point of the garden from the house. To show their 'friendly' nature even at this season of the year I am attacked by them during the few moments occupied in moving them the necessary half-yard when a bright day enables me to do so. One of my seven stocks is thus accounted for, another is in the 'Irish' hive which was so unfortunate, and the remaining five in square box hives of the same square as the 'Irish;' but two inches deeper, and with bars, but no frames.

The last-mentioned six stand in a bee-house fourteen feet long, while your original demons were all the summer on a stand six feet from the others, and all faced the east.—JACOB ROBINSON.

[Reference to our books shows that we supplied a swarm of black bees at the time stated, and most certainly, excepting in colour, there was nothing which could be considered demoniacal about them. If all the stocks originated from them, they must have changed their queen more than once, and they cannot be 'original demons' that now inhabit the hive, but are, doubtless, a cross through foreign bees in the neighbourhood. We should like a tussle with them. Regarding the dead bees, our opinion is unaltered: a few hours of suffocating heat and confinement will produce conditions that will account for the appearances described. Had the bees been dead 'for weeks' they would have become dry; or had they been stinking, the bees would scarcely have stored their honey in so foul a chamber.—ED.]

BUILDING DRONE-CELLS ON WORKER FOUNDATION.

While writing, I may mention an ingenious plan by which my bees showed that they were not to be beaten even by comb-foundation. When giving an extra story to one of my hives last summer, I filled all the frames with your flat-bottomed foundation. In the autumn I found that it had all been worked out regularly, with the exception of one of the outside frames. One side of this was worked out, and about half of the other side; but the remainder was pared down and made quite smooth, and from the top a separate comb was started obliquely, and worked out with drone-cells.—J. W. NAPIER, *Stretton Parsonage, Dec.* 13.

[We always leave about three-quarters of an inch at bottom of foundation, so that bees may build a little drone-comb, where it will be as little harmful as possible, for usually they will have a bit somehow.—ED.]

CURIOUS POINT OF LAW ON BEES.

Being over here on a short holiday, my eye fell on the enclosed, which I have cut out of the *Northampton Mercury*. The cutting seems to be worthy of a place in next *B. B. J.*—WM. BERRILL, *Ridgeway, Chesterfield.*

Robert Lovell, Grimsbury, v. George Lines, labourer, Chipping Warden.—Mr. Whitehorn for the plaintiff, who claimed 1*l.* for a hive and bees. It appeared that two years last Michaelmas the plaintiff, on leaving Chipping Warden, handed his hive and bees over to the

defendant, and asked him to take care of them for him till he fetched them. He did not go near again till a few weeks ago, when he found a number of bees in another hive, and he now claimed his own hive and these bees. He did not pretend to say that these were the identical bees he left with the defendant, but he said they were the descendants of them, his own, in the usual order of things, having died.—The defendant denied that these bees were the descendants of the plaintiff's, and said they formed a swarm which settled in his garden after the plaintiff's had perished.—His Honour gave judgment for the plaintiff with regard to the hive, but reserved the question of the bees for consideration.

[With the above in mind, one ought to be careful how they arrange for standing hives in other people's premises, for, in the summer-time, as is well known, the inhabitants of a hive, except the queen and drones, change very frequently; and often, through swarming and early drone-slaying, the whole population is changed. This is worth remembering.—Ed.]

BEES SWARMING ON SUNDAYS.

With regard to the curious fact of bees so often swarming on Sundays, has the vibration of the sound-waves caused by the ringing of the church bells anything to do with it? I remember years ago my bees would generally swarm on week days just as the bells called us to Wednesday and Friday 11 a.m. service. I intend to joke my bell-ringing friends on the subject. I have never seen any plausible reason given for the fact. Is the above rational reasonable?—Edw. Harris, *Branton Abbott Rectory, Norwich, Dec.* 9.

A TALE OF A TIERCE.

I showed a friend the other day a frame of comb and bees, when he rewarded me by telling me the following:—

In September 1879 he, a neighbour of yours—he is within four miles of you in a bee line—bought two tierces of raw sugar for food for his livestock, but found that his neighbour's livestock, other than quadrupeds, shared in his provision. One tierce he used during the winter, and the summer, with its abundance of natural food for animal sustenance, found him with one tierce of this sugar on his hands. To be out of the way until winter's requirements again demanded it, this tierce was rolled into an open shed, dry and sheltered. Soon it was noticed that bees visited it; then that they beautifully and perfectly cleaned, almost polished, all parts of the staves that had been sticky with sugar. So far, very good.

Truly said the poet:

'How doth the little busy bee improve each shining hour,'
And blend the sugar that I waste with nectar from the flower.

The bees came in peace and went in joy among his gardeners and herdsmen; contentment crowned by admiration reigned over that tierce, the owner whereof was a happy man.

But with the polishing of sugary staves the bees were not contented. To that they were welcome, so they helped themselves no more. Instead of ceasing when the outside was cleaned, they came in greater force. The streaming cloud of bees in and out of that shed was a sight. What could it mean? Behold at night the owner of that tierce groping silently and with candle in hand around it, and imagine the lengthening of his countenance as he found a broken stave with a hole in it big enough to insert three fingers. In go the fingers, but they feel no sugar; a stick also, but reaches nothing. 'Ah, you winged rascals! Did the divine Doctor patronise and eulogise such robbers?' At once a fence of stakes was built around that tierce; to these stakes boards were nailed; within these boards sawdust was shot until that tierce was entombed in sawdust. Winter came, the tierce was disinterred, and by weight it was found to be minus 6 cwt. It was reported that Mr. ——, a large bee-keeper near, never had so good a season as 1880.—H. L. M.

LAUREL FOR BEES.

In no book on bees that I have read have I seen any notice of their fondness for the common laurel. Perhaps the abundance of laurel about my garden has given me an unusual opportunity of observing this fact. However, that may be, I have been often surprised at the eagerness with which they frequent this shrub in the spring, just as the fresh leaves are formed. Of the blossom they take no notice.

I observed that on alighting they immediately went to the under side of the leaf, and following their movements, I found that near the base of the midrib, and close to it on either side, are two or three small glands, which are the objects of their search. These they evidently tap, and soon after a cicatrix forms over them, and they are no more visited. What do they get from this source? Is it propolis? for it seems an unlikely place for a secretion of honey.—A. G. W. Aubrey, *Hale Rectory, Salisbury.*

[That bees work on the laurel in the spring was noticed on pp. 34, 72, and 74, Vol. V. If any of our readers will examine the underside of an old laurel leaf, they will find two or more wounds close to the midrib of the leaf near its base; and from these, under favourable conditions, the nectar or honey-dew gathered by the bees is obtained. How the wounds are created, or under what conditions they distil the bee-food, we are unable to state. Perhaps in the ensuing spring the subject may have closer attention.—Ed.]

Echoes from the Hives.

Inverness, Nov. 28.—*Bees exposed to a storm.*—'During the furious gale on night of 21st the roofs of my Standard and another hive were blown off, and also the quilt, the frames being open and exposed to wind and torrents of rain—it was discovered between 7 and 8 o'clock during the height of the storm, so nothing could be done but putting on the roofs then; but about 10 a.m. when there was a lull, I went to have an examination and put on dry quilt, quite thinking to find all drowned, on taking them to a shed and removing floor-board to my

astonishment found hardly a dead bee, and they were as lively as possible, so after feeding them with warm syrup poured between the combs and giving a dry board and quilt, returned them to their place but tied down the roofs of all the hives to stakes driven in on each side of the hives. I cannot understand how they survived such a storm exposed probably for some hours before they were discovered. I had previously no anxiety as to their safety, as I believed I had made all firm and safe for winter storms.'—M. A. D.

Wokingham, Berks, Dec. 22, 1881.—'I again take the pleasure of wishing you a pleasant Christmas-tide, as well also a happy and prosperous new year. With many other readers of the *B. B. J.*, I have often felt a real pleasure in reading it, and take occasion to recommend it to others. Herewith my subscription of 10*s.* 6*d.* for 1882. Long live the *B. B. J.*!'—Isaiah Gadd.

Boston, Lincolnshire.—'The bees in this neighbourhood, I believe, are well cared for for the coming winter, thanks to your exertions and instructions disseminated amongst the persevering bee-keepers in this neighbourhood, who have taken Time by the forelock in paying attention to your instructions, and managed them accordingly. We seem now to be appreciating the improved management of bees, which will repay their keepers for a little extra attention to the improved system.'—James Lighton.

Leslie, N. B.—'The past season has been the most unprofitable one on record in this district. The heaviest first swarm which I have heard of (I did not see it) only yielded 30lbs., but any that I have seen only produced a few pounds. I am referring just now to straw skeps, few people here keeping bar-frames. With the exception of one week in the end of May the weather had been very unseasonable, nothing but rain and gales of wind with little or no sunshine. We don't want any more "comet" years hereabouts.'—John Livingstone.

Giotto Principle.—'I have been hoping to see more in your *Journal* as to the improved "Giotto" hive, and as to the practicability of converting my bar-frame hives to Giottos.'—G. A., *Tunbridge Wells.*

Professional Cottagers.—'I see the man you recommended has been in the habit of swooping off a great many prizes at the various shows as a "Cottage Bee-Keeper." This is very seductive and very nice, but how about the chances of a *bonâ fide* cottager ever managing his bees in the most approved principles? Have prizes for professionals if you please, but not allow them to snatch away cottagers' or amateurs' prizes. If this latter principle is carried out our county associations will flourish and increase.'—Robert Thorpe.

Queries and Replies.

Query No. 439.—*Separators for Sections.*—Could any of the readers of the *B. B. J.* inform me when separators were first invented, and by whom?—Adam Orr, *Crossford by Lanark, N.B.*

Reply to Query No. 439.—The first separators we ever saw were the invention of Mr. John Stewart, of Arbroath, N. B. They were of glass, and the sections that had been wrought between them were exhibited at the first show of the East of Scotland Bee-Keepers' Association at Dundee, in September, 1876. The date of invention we cannot vouch for. Mr. Raitt added to the perfection of the sections exhibited at Dundee by putting glass bottoms to them in lieu of wood, and the bees having built to the glass, showed the honey as well as the sealed comb.—Ed.

Query No. 440.—*Fertile Workers.*—Be kind enough to give the marks of the fertile workers through your *Journal*, so as I might know them.—A. O.

Reply to Query No. 440.—Unfortunately these pests have no distinguishing marks by which they may be known from worker bees, and it is only by their eggs and brood, irregularly scattered and in heaps—for they often lay from five to ten or more eggs in a cell—that their presence is suspected. Their progeny are always drones?—Ed.

Query No. 441. *Doubling to save transferring.*—Would you give me your opinion on the following method instead of transferring in spring? Could I not set the skep on top of the frame-hive making the bees use the flight-hole, furnish the frame-hive with your comb-foundation, and as soon as the bees begin to make comb in the frames drive the queen into the frame-hive still keeping the skep on the frame top; but putting excluder zinc between the top and bottom hive, twenty-one days after fixing the zinc all the bees could go into the lower hive, and I could deal with the skep as I pleased. I think that would save the trouble and uncertainty of swarming.—J. C. Lambert, *Sauk Island.*

Reply to Query No. 441.—The method proposed would answer very well if means were taken to permit the escape of the drones that would be hatched in the top hive, as they could not get through the excluder zinc and might cause a panic in the upper story. A bee-trap or a robber trap might be of service, and in the latter case we know of nothing so good as a simple tube of zinc with perforations that will prevent the passage of bees, except at the end of the tube.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

A Young Bee-Keeper.—*Preventing Swarming.*—This is one of the puzzles which bee-keepers have not yet solved satisfactorily, and probably never will, unless the instinct of the bees becomes changed. Swarming may be hindered, and its probability lessened by cutting out queen-cells, by removing the queen, and leaving only one queen-cell, by caging the queen, and cutting out all queen-cells from time to time, and by various other expedients—such as giving increased space for breeding—but if as the effect of the season for the time being the bees have acquired what is called the swarming mania, they will issue repeatedly, even though the queen be confined within the hives. Confining the queen and cutting out the cells containing embryo queens, as a matter of course, prevents actual swarming, but repeated attempts by the bees are almost as great a nuisance, and do nearly as much harm (when harm can be done by it) as swarming in reality. There have been many inventions for swarm-preventing, but none hitherto published have been successful except temporarily.

A Hampshire Lady.—The description of the foundation-fixer will be found in the present Number. The Robber trap may be kept on without doing harm, and may be useful in keeping out vermin.

Vague Address.—The gentleman who on the 22nd of December favoured us with sixty stamps for one cloth *A B C of Bee Culture*, and suggested that our address ('near London') was 'rather vague, and not definite,' will oblige if he will forward his own, which was omitted in his letter, when we shall be glad to forward the book.

J. J. S., *Somerton.*—*Artificial Pollen.*—The pea-flour named is excellent for the purpose, if obtained fresh. The skep and shavings offer the best means we know of for administering it. We shall give full directions in our next.

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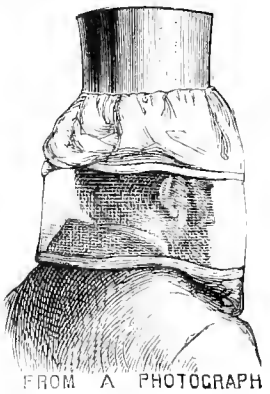

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Orchid-Culture: No. I., Angræcums—Notes—About Cut Flowers—Fruit-Culture—Hints for Amateurs—Vegetables Old and New—Greenhouse Plants: No. X., Eupatorium Odoratum—Christmas Roses—The Vegetable Garden—The Bomarea Carderi—The Spring Propagation of the Hollyhock—Work in Plant-houses Making Ends Meet—Botany for Gardeners—Low Night-Temperature for Grapes—Cool Treatment of the Grape-Vine—Notice of Book—Calendar: Forcing Department, Kitchen Garden—Notices to Correspondents.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 106. Vol. IX.] FEBRUARY, 1882. [Published Monthly.]

Editorial, Notices, &c.

FEBRUARY.

The weather during the past month, after the experiences of latter years, and of last year especially, has been extraordinarily mild in character, and in density of atmosphere has not been paralleled during the past hundred years.

Barometrical registrations show the atmospheric pressure to have exceeded that of a 30-inch mercurial column during the greater part of the month, and frequently to have exceeded thirty-one inches; and during all this time there has been almost total absence of wind, or, to put it more fashionably, 'atmospheric disturbance,' and during sunshine bees have been able to disport themselves without danger. Reports from various sources, some of which are 'echoed' herein, tell of the abnormal state of the country: birds breeding, young birds on the wing, and flowers and blossoms appearing as if 'twere really spring, and within the bee-hive a forward state of things that cannot be considered wholesome or safe.

Effect of the Weather.—The natural effect of the protracted mild weather has been shown in the abnormal breeding of bees; and from much correspondence on the subject there is reason to fear that many bee-keepers are disposed to encourage it; but in every case, except when starvation is imminent, we have strongly advised that they be interfered with as little as possible until toward the end of the month, when severe frost will be less probable. In places where crocuses and other early spring flowers have already appeared, breeding will certainly have commenced, and bee-keepers cannot be too careful in protecting the hives against severe cold should it suddenly set in.

Feeding Needy Stocks.—This must of course be done at all hazards; but care should be observed that no temptation to robbing be caused. Occupants of breeding hives are on the alert to gather food from any source, and woe betide a weak colony that offers inducements to invaders. Barley sugar, given in small quantities, is the best food we know of—an ounce or two per diem, to be given at night, will answer well, or a small bottle of warm syrup every two or three nights, given so that the bees can take it quickly, during the night, will be useful. A frame of sugar-cake, without flour, placed next to, but not amongst, the clustering bees, will save trouble, but may cause breeding, which we should be sorry to encourage at present; but if given, a bottle of water should be set over the feed-hole, so that it shall not be necessary for bees to go outside in search of it. It may not be wanted, because condensation of the vapours of the hive may furnish the bees with sufficient, but it is well to provide against the other contingency.

Barley Sugar, Sugar Cake, and Flour Cake.—Bee-keepers cannot be too cautious how they deal with these articles, but should understand that they have distinct properties and uses. Barley sugar, through the chemical action of the acid used in its manufacture, will be sure to liquefy and run about when given in larger quantities than the bees can take. It is made by boiling three pounds of loaf sugar and half a pint of water, stirring the whole time, and when all the sugar is dissolved, a wine-glass of vinegar should be added and the boiling continued till the bubbles crackle, when it should be tried by dropping a few drops on a cold surface. If in a few moments it sets hard and dry, it is done, if not, boiling must be continued. Be very careful not to burn it, for burnt sugar is death to the bees.

When done it should be poured into tins, and afterwards broken up and packed in air-tight vessels, or it will speedily soften and form into a mass.

Sugar cake is made in the same way as barley sugar, except that the vinegar (or other acid) must not be used. When the sugar is thoroughly dissolved, and sets hard on trying it, the stirring should be continued until the mixture is nearly cold, when it should be poured into moulds. To fill a frame it is only necessary to lay it (the frame) on a sheet of paper on

a cold surface, raising and blocking up the paper all round the outside of the frame. The thick mixture should then be poured into the frame, and when cold and hard, a wire passed round it will keep it from falling out if placed in the hive. Sugar cake is useful as a reserve of food to keep bees from starving, but its general use cannot be recommended.

Flour cake is useful when it is intended to stimulate bees to breeding, and should not be given at other times, or abnormal breeding will be the almost certain result. It is made in the same way as sugar cake, but when cooling should have a half pound of pea-flour added to it and well stirred in. Some advise common wheaten flour as sufficient for the purpose, but inasmuch as it contains starch in large proportions, it is not the best.

Stimulative Feeding.—Towards the end of the month stimulative feeding may be begun, but it must be understood on all sides that when once begun it must be continued if the best results are desired. Feeding 'by fits and starts' will excite the bees spasmodically, but the object in stimulative feeding is to keep up a gentle excitement that will gradually induce breeding, and conduce to its continuance. Bees in a state of nature will gather honey or pollen from any source on every possible occasion, but it is only when the spring flowers give hope of a continuous supply that they set to breeding in earnest, and it is in supplementing this supply that early, gentle, continuous feeding is most valuable. It must never be forgotten that the incoming of honey and pollen very largely governs the breeding propensities of bees, and this shows the height of wisdom. If simple wealth in stores were the incentive, the summer's accumulation would induce breeding throughout the winter, and results would be disastrous. This does not take place, and though, through disturbing causes, bees occasionally breed in winter, it is not good for the bees, but is fraught with danger. The disturbing causes may be undue mildness of weather and consequent activity and consumption of food, continual disturbance of the hive by wind or passing traffic, or by coldness or dampness of the hive, causing dysentery, as has been before explained.

Artificial Pollen.—When bees begin to gather food for themselves, and there is hope that frost will not interfere greatly with their breeding, pea-flour, which is the nearest approach to natural pollen, may be given to them. Some have great difficulty in getting bees to take the pollen, but if put into crocuses in the first instance they will very soon acquire a taste for it, and search for it in other directions. But bees are not likely to take pollen rapidly, unless there is also a corresponding incoming of sweets; therefore, when coaxing bees to take it, it is advisable to give them syrup also, by the bottle preferably, as least likely to cause robbing.

Water for Bees.—It should always be remembered that when breeding bees require a constant supply of water, which should be so arranged that they cannot drown in it. A leaking dish with pebbles, moss, or tea-leaves in it, into which water can drip, is one of the best means of supply.

Preparing for Summer: Forcing Bees into Supers.—Those who are wise will get in their supply of hives and sections before they are actually required, for reasons often given, but there is one little 'dodge' which those who wish to force bees into supers will do well not to omit. We last year advised many who could not get their bees to ascend to the sections on top, to fill one or more with brood and put them amongst their sections in the top crate. It is well known that bees will not desert brood unless forced to do so for self-preservation, and this condition is not likely to occur in summer at a time when supers ought to be filling. Sections of brood may therefore be safely put into crates, above the excluding adapter, with the almost certainty that the bees will take possession and continue to work there; and as the queen will not be able to add to the brood, and its presence will not contaminate other sections, the combs built by the bees will be stored with honey only. We therefore advise that certain frames be fitted with sections to be put into the body of the hive, so that they may, when the time is ripe, be lifted to the top, thus lessening the brood chamber and forcing the bees into the supers. The two-inch sections will, as a matter of course, be too wide for this particular service; but if cut down the middle they will do very well. The difficulty in most cases will be the size the other way, as the majority of sections are of American standard sizes, viz., $4\frac{1}{4} \times 4\frac{1}{4}$ and $6\frac{1}{4} \times 5\frac{1}{4}$, and will not fit English frames. Those who use Abbott's sizes of frames can, however, get out of the difficulty, for their sections are specially made to fit them, a Woodbury frame taking four or six, and no alteration is necessary except that the thin bottom rail should be removed and a stouter one introduced and nailed *between*, instead of *beneath*, the bottom of the frame ends. The semi-sections can be fitted with foundation in the usual way, and when they have done duty as attractions to the supers, they can easily be replaced in their frame, and restored to the brood-nest, if desired; but after having been only once used for breeding, as would be the case with swarms, they might be thought worthy a different fate. This semi-section idea opens the way to certain suc-

cess in honey-getting, in favourable seasons, and will be the means of increasing the yield in sections at all times.

THE PROPOSED CHRONOLOGICAL CALENDAR.—This will be postponed for the present at least, for it is evident that little interest is felt in the matter, only one gentleman, W. N. Griffin, Esq., of Alphington, having responded to our appeal for aid in its organization. We tender him our best thanks.

BEE-HOUSES AND HIVES.—By reference to the admirably written paper, read by the Rev. G. Raynor, which will be found in other columns, it will be evident that differences of opinion exist, and we suppose always will exist, in regard to matters of the most vital importance in bee-keeping. With regard to bee-houses, the consensus of opinion is very decidedly against them, and we regret that Mr. Raynor's success should have induced him to recommend them in the face of that opinion. The comparison of the bee-house used by Mr. Raynor, which is about 12 feet long and about 4 feet high, on its stand, and into which twelve hives are crowded, with Root's House Apiary, which is 16 feet in diameter at the least, and of octagon shape, so that its entrance-faces face nearly all the chief points of the compass, is barely legitimate, and his (Mr. Root's) statement of the advantages of such a building should, we venture to think, have been accompanied with the disadvantages he at the same time points out, and we therefore give them that both sides of the question may be heard. Mr. Root says:—

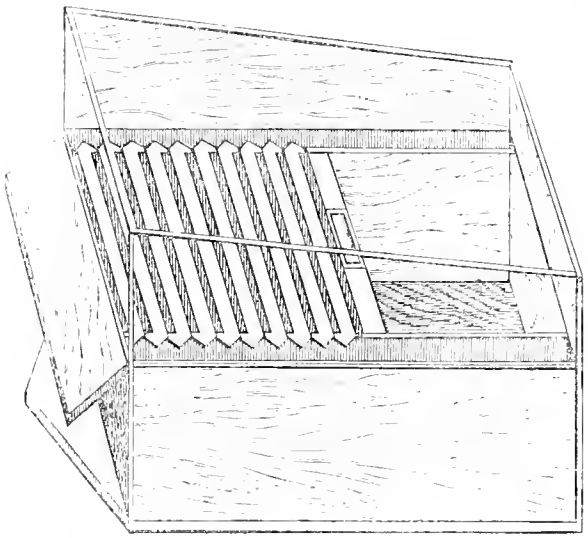
'The objections to the house apiary are, first, the expense, especially the *first* expense, for a man can make a start in bee-culture with a very small amount of capital, with the out-door hives, and the sales of honey and bees, will at once furnish all the capital needed for a moderate yearly increase. With the house, the capital to put up the building must be furnished at the outset, and a house for fifty colonies will cost much more than the same number of hives. Most apiarists prefer working in the open air to being cramped up in a building, no matter how large it may be, even at the expense of having to perform more labour and take more steps. Secondly, in a building, we are obliged to get all the bees out of the room every time we open a hive, and bees, either dead or alive, are very untidy when crushed by careless footsteps on the floor of a room. To avoid this necessitates an almost incessant use of the broom. Again, when young bees are out for their first flight they will, if the hive is opened just at the right time, come out in the house in great numbers, and to try to stop them by any other means than closing the hive is like trying to stop the rain from falling. The bees, after having had their "play-spell," will insist on returning to the hive in the same way that they come out; and if they are driven out of the house and the door closed, they will sometimes collect in a large cluster on or about the door. It is true they are seldom lost, for they will usually be allowed to enter the hives nearest the door, but it weakens the hive from which they came, and is apt to puzzle a novice sorely. To obviate this trouble we can avoid opening the hive during the afternoon, or at such times as the bees are likely to rush out for a play—after a shower, for instance.'

We are painfully aware that, being connected with a hive business, we are at a disadvantage, inasmuch as we are likely to be suspected of interested motives, and particularly as some of our writing in respect of the Improved Giotto frame-hive, written without a notion of Mr. Raynor's opinions thereon, are so opposite to his: but to relieve ourselves in some degree from liability to suspicion we would point out that our sole object is the benefit of bee-culture, and that, while recommending things, we show every one how to make them for themselves in the cheapest possible way, which we have done with every article we have put before the bee world. We trust it will not for a moment be supposed that we attribute other than the highest and best motive to Mr. Raynor, viz. 'an earnest desire to arrive at the truth;' we are imbued with the same desire, and in some of the instances cited, believed, from the experiences of ourselves and many others, that it (the truth) had been arrived at, and that further bitter experiences would be unnecessary. We have not now space to go largely into the questions raised in respect of hives and frames, but can assure our readers that if we could have obtained cork suitable for hives at a reasonable price, cork hives would have been abundant long since, but as a matter of fact, virgin cork is not sufficiently shapely for frame hives, and manufactured cork is too expensive. We may add, in respect of a Standard frame, that no one strove more earnestly than we to get one adopted by the British Bee-keepers' Association, we foresaw what is now generally evident, and although greatly in favour of a tapering frame we were willing to adopt any the Association might determine on. As regards the Woodbury frame which Mr. Raynor 'believes' we have 'lately put forth,' if he will turn to the reports of the first Crystal Palace show, he will find that we were awarded two first prizes for Woodbury hives, containing Woodbury frames, and we have never ceased making them. The subject, however, is too important to be dealt with hastily, and when the discussion following on Mr. Raynor's essay comes before our readers there will be better opportunity for fuller observation. We are sorry to feel that we do not agree with all that has been said on the questions in hand, but most sincerely thank Mr. Raynor for re-introducing them.—ED. *B. B. J.*

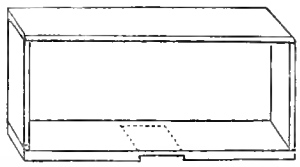
HOW TO MAKE A FIRST-CLASS HIVE.

The foregoing has been a subject of inquiry during two months, viz. November 1881 and January last; and now we feel it necessary to reply to a few questions that have been put, to

show our amateur readers how to deal with it. A reverend correspondent from Co. Carlow, Ireland, asks, among other matters, 'What is the space behind the frames for?' and in reply we say,—For any purpose for which such space may be useful. In spring or autumn it may be used as a place for feeding. Raise the back dummy a quarter of an inch or little more, and put in the food, in any of the simple forms that commend themselves to cottagers, but which when outside or near the entrance of a hive but too often cause robbing. Odd pieces of



bleeding comb may be put there to be cleaned, combs filled with syrup may be placed there, or barley sugar, or sugar cake, or loaf sugar moistened; or, if a system of regulated feeding be determined on, it will be very easy to adapt any of the feeders in use, so that the bees can get under the food as if it were on the top of the hive, and in this case will be less likely to fill up the brood-nest with liquid food. To do this, a strip of wood of the length of the hive from side to side, about three-fourths of an inch thick, and about half-an-inch wider than the feeding-bottle, will be required. Through the centre of this a hole should be made, large enough for a feeding-plate of vulcanite, or metal, which should be fixed as in ordinary. The wood should now be cut away from one side of the hole so that when the strip lies with the feeding-plate uppermost, the bees can get into the hole, and it should then be laid on the floor-board of the hive with the last-named hole against the dummy, when, if the dummy be raised about half-an-inch the bees will have access. An easier way would be to cut a notch in the dummy, or make a cork hole, to correspond with the hole in the side of the feeding-stage; but any plan will answer that gives the bees access to the bottle of food on the feeding-plate. When feeding bees in the rear of the hive, the entrance should be contracted to the smallest size convenient to the bees, for as great interest will attach to the feeding domain, the front of the hive may be less guarded than usual. As summer approaches, the back part of the hive may be gradually filled with frames, sections or section frames, always remembering that bees will often store honey on the ground-floor of their hives, when they will not visit supers at all. For winter use the brood-nest can be brought to the centre of the hive, a zinc tunnel laid from the entrance to a dummy or chaff cushion, with entrance at the bottom (as per woodcut), on the front side, and a similar one without entrance at the back, and all vacant space can be filled up with hay or shavings. The hive for winter use may be readily adapted for two stocks by making a second entrance.



Our reverend querist then says, 'If the hive is to be filled with more frames in summer, will not a larger super and adapter be required than for the hive as it is?' And to this we say, No, under ordinary circumstances, because if storing were going on in rear as well as on top, and the sections are removed as soon as they are ready, there is ample provision for storage in both places.

Question No. 3 then is, 'Are the side-spaces to be packed in winter? if so, why are there not similar spaces at front and back?' The side-spaces are intended to be packed in winter; and if there is fear of evil from a few bees getting into them in summer, the packing may be retained on the principle that what will keep out the cold will keep out the heat. It would be advisable when starting it with a swarm to pack the sides lightly with hay to prevent the queen getting down, and the possible danger in dislodging her. At every examination of a frame-hive there may be a few bees difficult to keep off the quilt, or from other parts under the roof, but if the cover (roof) be left on askew, or tilted for a short time, they will find their way out.

Question No. 4, 'Is the floor-board to remain fastened to the hive?' In ordinary square hives it is well to have it moveable, as otherwise it is difficult to clear it; but with long hives we have concluded that it is quite

* In the woodcut which we give above, the hive is shown with its front corner transparent, so that anyone may see at a glance how easy of arrangement are all its parts. As shown, it has our physic-bottle feeder dummy in it, which is far from being a bad thing, and anyone can make it.

safe, and better in many respects, that they should be firmly nailed on. Loose floor-boards often warp, or the side walls shrink, leaving crevices for the bees to stop, or to form harbour for insects, whereas when nailed on they are close-fitting; and in these hives, which, except during the summer, are seldom more than half filled, and on which the whole brood-nest can be moved from end to end almost without disturbance, the whole of the floor-board is comeatable for any purpose.

Question 5, 'What way is the door and glass door of the section crate to be placed?' and what is it for?' The glass front with shutter should be placed where it will be convenient to look through to see if the outside sections are full,—and that is its purpose.

Question 6, 'Which side of the adapter goes next to the tops of the frames?' The side to which the zinc is fixed is usually kept uppermost permitting the passage of bees between it and the frame tops. If it were laid zinc downward, the passage of bees would be materially interfered with, and there would be a great deal of propolis used.

THE IMPROVED GIOTTO-FRAME HIVE.

If we may judge by the number of letters received on this subject, the principle involved therein is gradually gaining adherents, and, having been long convinced of its value in bee culture, we think it right that those who wish for hives on that principle should be shown how to make them in the simplest way. The advantages of close-ended frames have been considerably dwelt upon from time to time, and need not again occupy valuable space, particularly as it is evidenced, in the letters referred to, that they are understood and appreciated. One of the chief advantages of the improved Giotto-frame principle consists in its pliancy, by which any box of reasonable size may be converted, at very small cost, into a useful hive. Take any ordinary packing-case; or, perhaps, it would be well to determine first the size the hive is to be, and, supposing it is agreed that its outside dimensions shall be somewhat similar to those of an elongated Woodbury, say about 14 ins. by 8, and 20 to 30 ins. long; we must select a box of somewhat larger dimensions to contain the frames, of which, practically, the hive will be formed.

Having our box, which, as before said, may be of any reasonable size, we cut away part of its top, so that it shall have sufficient slope to carry off the rain when the lid or cover is put on it.

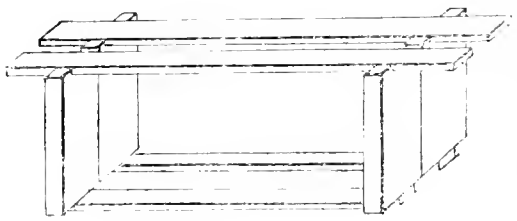
We now cut a piece of half or three-quarter inch board of exactly the length the box is wide, and, having marked the centre of it, and measured off seven inches on each side of the centre, we apply a square (carpenter's) and make two lines, as in sketch, which will be exactly 14 ins. apart—the width the hive

proper is to be. We then line out the board lengthwise, and cut it into strips exactly 1 in. wide, to form the top bars of the frames. Well, that little job is quickly disposed of, and if the board was 9 ins. wide there will be eight frame bars all evenly marked, showing the exact spot where the frame-ends are to be attached to them.

Now for the frame-ends: well, a glance at the woodcut will show the shape they are intended to be; they must, for the size intended, be $1\frac{1}{2}$ ins. wide, $7\frac{3}{4}$ ins. long, and about $\frac{1}{2}$ in. thick, and the notch cut out of the top must be an inch wide, and as deep as the top bars are thick, for they are intended to go into the notches and fit tightly. It is almost needless to say that if there are eight frames sixteen frame-ends will be required, but care should be taken that they are all smooth and true on their edges and square at their ends and notches. We next want eight bottom rails, which should be exactly 14 ins. long, 1 in. wide, and $\frac{1}{4}$ in. thick, and then the frames will be ready for nailing together. Remembering the pencil marks on the bars are 14 ins. apart, and that the hive is to be of that size, and it being essential that when the frames are put side by side to form the hive there should be no irregularities inside to tempt the bees to propolise, it will be important in putting on the frame-ends that their outsides should be exactly even with the pencil-marks, which will keep all the inner surfaces of the frame-ends smooth and even; and then, if the bottom rails are nailed on properly, the frames will be true and equal. But before the frames are nailed together it will be advisable to make

a saw-cut down the middle of the top bar to receive the comb foundation or guide, as may be decided on, and, having fixed the right hand frame-end, the other may be left unnailed until the foundation or guide is in its

place. For fixing the frame-ends we would recommend screws, to go through the cheeks of the top-ends, and also through the bars, because it may some day be convenient to enlarge the hive by widening it, in which case, by withdrawing the screws and providing new bottom rails, the frames may be widened at pleasure, which cannot be done with the frames in any other form of hive. The frames having been made, the box must be prepared to receive them: they are 8 ins. high, and require to be supported by their ends, so that they shall be from $\frac{1}{4}$ to $\frac{3}{8}$ in. from the bottom, which can be easily effected by nailing strips of wood along both sides, inside the box, at the necessary height. If the top bars of frames are $\frac{1}{2}$ in. in thickness, the top edge of the strips must be $7\frac{3}{4}$ ins. above the bottom; but if they be $\frac{3}{4}$ in. thick the tops of the strips will



be $\frac{1}{4}$ in. lower. The woodcut will show how the frames are to be placed, side by side; and when an entrance way has been made in the front end of the box they may be placed inside upon the strips, which may now be considered the runners.

The box we are presuming to be about 30 ins. long, and we strongly advise as much as this, because it may be convenient, for wintering purposes, to put two stocks in it, separated by a thin board only or a solid comb, in which case the heat will be greatly economised; and in any case a little spare room in such a hive can do no possible harm, but may be found highly convenient.*

With the frames in position, it will be seen that there is, or may be, considerable space between the hive walls and the inner hive, and it will naturally occur to many that the bees will get from under the hive proper and take possession of these spaces, but if they do it will be simply because they have been stinted of room in their own domain.

Should any one fear this eventuality, and wish to provide against it, a moveable piece of wood, 1 in. square, and of the length of the hive inside, laid along the floor of the hive on each side of the frames will effectually confine them, and for winter use will give space for warm packing. To confine the bees to the frames (from the rear) a simple, plain board only is needed, 14 ins. long, and $8\frac{1}{4}$ ins. high, or thereabouts, and to keep all tight together and prevent propolisation a strip of wood, long enough to reach the back, should be strutted tightly against it.

With quilt upon the frames, and alighting board and porch fixed, the hive will now be ready for the reception of a swarm; but its treatment, with other matters, must be delayed until our next issue.

* Last year a 24-in. hive on this principle, but with frames somewhat larger, was completely occupied by a swarm; in about three weeks nearly every comb being filled and sealed.—Ed.

THE IRISH BEE-KEEPERS' ASSOCIATION.

There are times when no news may be considered good news; but this cannot be said of a Bee-keepers' Association, and particularly of that which was so lately formed in Ireland. Complaints are being made that nothing is being done, that there is no energy at head-quarters, and, evidently, no faith in the cause in the minds of those who are in office. Now is the time when arrangements should be making for the summer campaign; but nothing is being done. We have heard that the Royal Dublin Society is anxious—aye, 'anxious'—that the I.B.K.A. should be represented at their Annual Show in April next, and surely the opportunity should not be allowed to slip; yet so far nothing has been done.

One dissatisfied member writes:—'I see by the leaflet, that one of the objects of the Association was to have lectures during winter months; but, up to the present, nothing has been done.'

Another says:—'Only for the press harping, our Irish Association would be on paper only. The Hon. Sec. fears to take one active or energetic step.'

We are sincerely sorry to hear such complaints, and, coming whence they do, to feel that they are but too well founded. The gist of them all is, 'There is nothing being done.' Surely in such case the members will take matters in hand, and not allow the Association to dwindle away because its Hon. Sec. is too busy or too timid to take a step in advance.

We are told the Committee is so widely spread that a quorum cannot be obtained in Dublin, and that, therefore, the whole thing drags; but we sincerely hope that, failing action on the part of the Hon. Sec., the members will make themselves heard and save the Association, so full of promise, from a lingering death.

THE BLIGH ECONOMIC APIARY COMPETITION.

The Committee of the British Bee-keepers' Association have under their consideration the rules and regulations that will govern this important competition, and they will, in all probability, be ready for publication in our next issue. In the meantime we may say that, as the competition is intended to show the superiority of improved bee culture, and to convince the world at large that bee-keeping, when well understood and practised, is a profitable industry, and as it is intended that it shall be carried on under surveillance by recognised authorities, it is proposed to limit the competition to members of the British Bee-keepers' Association and of Associations in affiliation with that body. This will not be in any way prohibitive, as intending competitors can qualify themselves in that respect forthwith, but an important part of the proposal will limit the competitors to such as shall be approved by the committees of the respective associations, and here is a duty imposed on the committees that we trust will not be lightly dealt with. From our point of view, the competition should be strictly confined to experts who would be able to give good reasons for whatever occurred, so that, excepting the weather, which none can control, there should be aslittle left to chance influence as possible.

Again, as the duty of surveillance will devolve upon the Committee, by themselves or by their deputies, we would suggest that their labour will be lightened and made much more pleasant if moral considerations have weight in the approval of competitors. We hope there will be a large number of entries, and that the competition will not be considered as between one and another, but that all will unite in a great effort against the ignorance and stupidity which have so long held bee-keeping unworthy a place among the industries of the country. After years of expensive and patient labour, the country has been aroused to a consideration of the question, many associations have been formed under royal, noble, ecclesiastical, and titled patronage, and hundreds of ladies and gentlemen have interested themselves, and are on the tip-toe of hope and expectation; and we want to see this competition so carried out as to honestly prove that the labour, expense, patronage, and interest, have not been bestowed upon a myth.—Ed. *B. B. J.*

Bees in Paris.—'A notice has recently been posted to the effect that, as the keeping of hives in the neighbourhood of markets, schools, and refineries is dangerous, it is forbidden to raise bee in Paris without special permission, and that all persons possessing hives must suppress them within a week, unless authorisation be previously obtained.'—*Echo*, Jan. 26.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.—ROYAL APPRECIATION OF HONEY.

The Berks and Bucks Association have been honoured by the acceptance by Her Royal Highness the Princess Christian of the splendid exhibit of honey which won the British Bee-keepers' Association's Silver Medal at their great show at Maidenhead last autumn. The prize was deservedly awarded to Sir Gilbert A. Clayton East, Bart., the President of the Association, whose exhibit consisted of twenty-two Abbott's original sections, holding two pounds each, the liquid honey in the cells showing to the beauty of perfection against the glass, which in these take the place of the wooden bottoms of ordinary sections. The exhibit was purchased by the Association specially to present to Her Royal Highness, and the Rev. Edgar Sheppard, Minor Canon of St. George's Chapel, was deputed to present it; and to prove the deep interest taken in the proceeding, Her Royal Highness, who is the Patroness of the Association, graciously acknowledged its receipt with her own hand, writing, 'I am extremely grateful to the Committee of the Berks and Bucks Bee-keepers' Association for their kind present of honey; and may I ask you to convey to them my sincere thanks for their kind thought of me.'—Signed, Helene, Princess Christian of Schleswig Holstein, Princess of Great Britain and Ireland.

[Could anything possibly be nicer?—Ed.]

PERMANENT COLLECTION OF BEE-HIVES, &c., AT SOUTH KENSINGTON MUSEUM.

The British Bee-keepers' Association has wisely determined to make the permanent collection of bee-hives and bee furniture, &c., at the South Kensington Museum more attractive to the general public, and so spread a knowledge of modern bee-keeping and create a wider interest in its study. At present it is composed of hives, &c., lent by Messrs. Neighbour, Baldwin, Hooker, Cowan, and others.

With this object, a member of the Committee has been endeavouring to obtain for this collection frame-hives, and modern appliances, and other objects of interest.

Abbott Brothers have promised a hive fitted with various kinds of guide comb, also queen cages, robber traps, and other articles manufactured by them, and last, not least, their valuable collection of different kinds of bees preserved in spirits, admired at Louth and other shows. Mr. Cowan has promised specimens of comb, honey, jars, crates, &c. Several bar-frame hives have been contributed by others, and by Mr. Baldwin an observatory hive, and it is to be hoped that some one may be found to contribute a stock of Ligurians to exhibit in it, for the attempt is to be made of keeping bees in the observatory, and one or two other hives to give a livelier interest to the collection; but it remains to be seen if London, which supports so many trades, can also support the bee-keepers.

Not an unimportant feature in the collection will be its ultimate value as a central collection of all curious and rare bees, their enemies, diseases, and freaks; and it is most earnestly hoped that any friend to bee-keeping will carefully preserve any specimens of such, and send them direct to the Permanent Bee-hive Collection, South Kensington Museum, and write to Mr. H. Jonas, of 64 Redcliffe Gardens, South Kensington, the member of the Committee of the British Bee Association who has undertaken the charge of the collection, and who will gladly receive any contribution of interest and answer any communication respecting the same.—*Communicated.*

BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the members will be held in the Board Room of the Royal Society for the Prevention of Cruelty to Animals at 105 Jermyn Street, on Wednesday, February 15th, at four o'clock in the afternoon. The chair will be taken by the President of the Association, the Baroness Burdett-Coutts. The following important subjects will be discussed at this meeting, viz.:—

'That it is desirable that the British Bee-keepers' Association do set forth a *Standard Frame*, stamped by its sanction and authority, with the view to bringing such frame into general use. Its size and form to be determined by a Committee appointed for that purpose.'

'That vacancies in the Committee occurring at any time during the current year be filled up from the unsuccessful candidates, according to the priority of the votes obtained at the election.'

'That the *British Bee Journal* (so long as it shall remain under the Editorship of Mr. Charles Nash Abbott, and promote the interests of the British Bee-keepers' Association) be regarded as the official organ of the aforesaid Association.'

The First Quarterly Meeting of the present year was held in the Lecture Room at Exeter Hall, Strand, on Wednesday, January 18th. Present: Mr. T. W. Cowan (in the Chair), Rev. G. Raynor, Rev. E. Bartrum, J. M. Hooker, H. Jonas, D. Stewart, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Secretary). The following county representatives were also present, viz., Rev. Astley Roberts and Mr. G. N. Martin (Hertfordshire), Mr. W. S. Darby (Berks and Bucks), Rev. W. E. Burkitt and J. H. Dixon (Wiltshire), Captain Campbell (Surrey), and Mr. Jessie Garratt (Kent). The minutes of the last meeting were read and confirmed; the balance-sheet for the past year was also read, showing a balance in hand of 17*l.* 2*s.* 11*d.*

The Secretary submitted the Committee's report for the past year; resolved, that the same be printed and a proof forwarded to each member of the Committee for his approval, previous to its being issued to the members. Mr. T. B. Blow (Welwyn), Mr. J. R. Pocock (Bromley), and Mr. R. Green (Rainham), were elected as supplementary experts to the Association.

The following motions were discussed with the county representatives:—

(1.) Moved by the Rev. H. R. Peel, 'That the Committee of the B. B. K. A. do affirm the principle of voting a fixed sum every year to be expended in assisting the formation of County Associations, by providing a lecturer for a series of lectures similar to those which have recently been held in Wiltshire and Norfolk.'

The Rev. W. E. Burkitt stated that the recent tour in Wilts had been most successful. It was the general opinion of the meeting that a proportionate sum should be expended by the County Association itself, and that the Central Society should receive some guarantee from the County Association that such lectures would be well organized and advertised throughout the county, in order that they might produce good results. It was resolved, 'That the Committee should recommend the sum of 30*l.* to be devoted to this object during the year 1882.'

(2.) The Hon. and Rev. H. Bligh's motion for the promotion of economic departments in apiaries. Mr. Bligh submitted a list of rules for the management of the competition, which were discussed by the Committee at considerable length. Some amendments being considered requisite for the success of the undertaking, ultimately it was resolved to appoint a sub-committee, consisting of the Chairman, Rev. G. Raynor, and the Honorary Secretary, to revise the rules and to confer with Mr. Bligh for their final adoption.

The Secretary called attention to the frequent violation of the rules relating to the awarding of medals and certificates at the annual shows of County Affiliated Associations, such prizes being open for competition only to members or cottagers residing within the boundaries of the county, or within such boundaries as shall be defined by the County Association. No competitor to enter for more than one county competition. The latter clause being added to the original rule to enable County Associations to include parishes situate on the borders of their county which are not situated within the county, but connected with it for various purposes.

A Conversazione was held at six o'clock; there was a large attendance of members, including Revs. E. Bartrum, H. R. Peel, T. Sisson, W. E. Burkitt, and Messrs. C. F. Williams, Col. E. Smyth, A. Neighbour, J. Camaschella, H. G. Morris, F. Lyon, D. Stewart, J. M. Hooker, W. O'B. Glennie, H. Jonas, Capt. Campbell, J. Garratt, G. Henderson, T. W. Cowan, S. J. Baldwin, P. Athanes, G. D. Clapham, F. H. Meggy, G. Drinkwater, &c. The chair was occupied by the Rev. J. H. Dixon, representative of the Wiltshire Association.

The chairman having briefly introduced the Rev. G. Raynor, of Hazeleigh Rectory, Maldon, Essex, the reverend gentleman proceeded to read his paper on

Bee-Houses and Hives.

Mr. Chairman and Gentlemen,—The subject upon which I am about to address you this evening is so extensive, and its interest so great, that if I were not fully convinced of the sympathy of my audience in the arduous task which I have taken upon myself, I should despair of treating it satisfactorily, even in the most cursory manner. But from the kindness experienced, on former and similar occasions, I feel that I may count on your forbearance on the present occasion, with regard to the few remarks which I propose to lay before you on 'Houses and Hives.'

Without further preface, then, I will at once enter upon my task.

And, 1st, as regards bee-houses. I can fancy that I hear a general chorus of exclamation, 'Why, I thought they were exploded long ago! Surely advanced bee-keepers, nowadays, would never think of introducing such a cumbrous erection as a bee-house into their apiaries!'

Well, I am perfectly aware that they have been written down, and that the modern fashion is to decry them; nevertheless, since my earliest days of acquaintance with the honey-bee, I have never been without one or more good and substantial houses in my apiary, and, what is more to the point, have always found them productive of large yields of honey and swarms, in fair seasons, more so, indeed, by far, than hives on separate stands.

The objections to the use of houses are generally stated thus:—1. Expense; 2. They form a shelter for mice, moths, spiders, &c.; 3. Dampness; 4. They en-

courage robbing; 5. Are inconvenient for manipulating, causing also disturbance to the adjoining hives; and, 6. Loss of young queens on their return from mating with the drones.

Let me endeavour to answer these objections *seriatim*, first of all premising that by the word '*house*' I do not understand the simple bee-shed, open in front, and sometimes at back also, but a complete enclosed house, with closed front, and folding-doors at back, with proper ventilation, and other modern appliances.

First, then, as regards expense. The original cost of one of my houses, similar to the one I have just mentioned, and which I have had in use for about twelve years, was 5*l*. 5*s*. It contains twelve bar frame hives, six on the upper and six on the lower, with sufficient space above each hive for crates of sections, or other supers. The space between the hives is 8 in., and each hive stands upon its own separate floor-board, the sunk entrance of which corresponds with an entrance exactly similar in size and shape, formed in the front of the house. The house is divided into two compartments, each with a pair of doors opening at the back and fitted with stout locks. Ventilators, which may be opened or closed at pleasure, are placed in the gable ends. The upper tier of hives stands at a height of 4 feet from the ground, the lower at 2 feet, thus affording space beneath for cupboards, or receptacles for hives, apiarian implements, or other bee-furniture. The entrance to each hive is isolated and surrounded by projecting boards of 8 inches in width, and each has its separate alighting-board, the divisions thus formed being painted white and green alternately, the entrances ranging 2 feet from each other.

Now, I think it will be allowed that in such a house as this, which is substantially built of good sound pine, a less expensive hive will be required than for a single stance where no protection is afforded, and where double walls, stout roof, and separate stand, are simply matters of necessity. In the latter case we may estimate the cost of a well-painted and finished hive at 25*s*. at the least. For twelve hives we thus incur an outlay of 15*l*. Now let us compare this with the cost of the twelve-hived house. Since a house of this description readily admits of chaff-packing to any extent desired during the winter months, and of shelter from the burning rays of the summer sun, a much less substantially constructed, and consequently less expensive hive, will be required. In practice, I find that a good moveable-frame hive, with quilt and floor-board complete, can be obtained suitable for this purpose for the sum of 8*s*. But even putting the cost at 10*s*. and allowing the sum of 6*l*. for the house, the total cost of the house with its twelve hives will be 12*l*., showing a balance of 3*l*. in favour of the house system as compared with that of hives on separate stands. Thus, I think, I have sufficiently refuted the allegation of greater outlay being required,—at least when the number of hives is not below twelve.

The next objection, 'That houses form a shelter for moths, spiders, mice, &c.,' is at least as true of hives on separate stands. An occasional brush over, externally and internally, will keep both clear of these pests, especially if a little sprinkling of diluted carbolic acid be used. Dampness I have found injurious to separate hives, but never to those protected by a well-ventilated, weather-proof house.

'But,' say some, 'houses encourage robbing!' To which I reply, not necessarily more than the separate stand system. To my house-entrances a modified form of the tunnel, recommended in *Modern Bee-keeping*, is applied, and no single instance of robbing to any extent has as yet come under my notice. If stocks are kept strong in population, with young and fertile queens at their head—which ought to be the case in every well-managed apiary—no injury from robbing will ever arise. The separation of the entrances, to which I have already referred, is also preventive of robbing.

The next allegation is, 'Inconvenience in manipulation.' Now before manipulating a hive on separate stand, my own practice is to remove it to a quiet corner, or under the friendly shelter of some neighbouring tree in near proximity: finding this plan advantageous for several reasons, more particularly that you escape annoyance from returning bees, as well as from those which take flight on the disturbance of the hive—all returning to the original stance, on which an empty hive has been placed to afford them occupation. And just so I proceed with my house-hives. The one to be examined is taken from its shelf, its place being temporarily occupied by an empty hive, in which sometimes are placed combs for cleansing after slinging. Thus all returning bees are pleasantly employed during the examination of their domicile, and no undesirable commotion arises.

But I come now to the last, and by far the most important, objection to the use of houses, viz. The loss of young queens; and of this, I fear, there is considerable danger if the plan of natural swarming be allowed. In actual practice I never, if possible, permit a natural swarm from the houses assigned to the production of honey. From one containing twelve hives, and from another with six, during the last season I had not a single swarm, either artificial or natural, and, strange to relate, I made no excision of queen-cells, nor did I practise any of the usual methods of preventing swarms.

The houses, all through the many weeks of bright summer weather, from the middle of the month of May down to the early part of August,—a period almost without a check to the abundant influx of honey, indeed a season so prolific I scarcely remember within the last thirty years,—during the whole of this period the houses were thoroughly ventilated and kept as cool as possible, with the thermometer standing, as it did at one time, at 93°. These house-sheltered hives were almost daily relieved of their sections, and the gorged outside combs were passed through the extractor and returned to be refilled. From one of these houses came my largest honey yield, viz. from four hives, 412 lbs. of super comb honey, chiefly in 1 and 2-lb. sections, beside extracted honey, of which, from want of leisure, unfortunately I did not keep account. The largest yield from a hive on separate stand was about 80 lbs. The combs of several of my swarms on separate stands fell, from the intense heat, although built on thick foundation, while no such accident occurred to those under the protection of a house.

These eighteen house-protected stocks worked continuously and quietly throughout the summer, evincing no undue commotion, nor any inclination to the swarming fever, although separate hives gave repeated swarms, more particularly those in straw skeps, for I must plead guilty to a lingering fondness for the hive of our forefathers, and should be sorry to see my apiary deprived of its half-dozen skeps. But the loss of young queens, it is said, is of common occurrence where houses are used, in consequence of the entrances to the hives being so much alike and so near to each other. I have already said that if natural swarming be permitted, there is danger of the loss of youthful queens: and yet not more so than you will almost always find in the cottage gardens. The cottager's apiary, as you all know, is almost invariably confined to a corner of his little garden; and who has not often wondered, when, beholding his row of rotten skeps in close proximity, that, after swarming, he does not usually lose his young queens, or that his hives are not decimated by robbing? But during a long and varied experience of cottage bee-keeping, I have rarely found this to be the case. Why then should we fear the loss of queens from houses? Probably because there may exist more of sameness—less distinctive marks—in the entrances to house hives. However this may be, there is a very simple way of avoiding risk by removing the parent hive, immediately the swarm has issued, to some quiet nook remote from other stocks, and placing

the swarm, without delay, upon the parent stand. Whether in houses, or on separate stands, I always practise this plan. Thus the young queen has every chance of safe return, over-much swarming is discouraged, from your swarm you may reap an abundant harvest, even during its first summer, and it will never desert its hive, as too often happens with the unskilled cottage class.

In consequence of the rapid strides with which bee-culture has been developed in this country during the last few years, weighty reasons in favour of house apiaries have arisen, more especially is it desirable that the cheap modern frame-hive should have house protection.

Before entering on house erection, however, I would advise every one to consult an article on House Apiaries by Mr. Root, the well-known American bee-keeper, in his *A B C of Bee-culture*, in which he gives a sketch, with ground-plan, of an octagonal house apiary for thirty-six hives. I will not attempt a description here, since each can read it for himself, but I can only say that if I had to recommence bee-keeping, with my many years' experience, I should not hesitate to adopt his plan to a great extent, and by so doing have not the least doubt of being able to save in expense, at least fifty per cent, of what I have already invested, and to reap the advantages enumerated by Mr. Root, which, in concluding this part of my subject, I venture to lay before you. He says:—

'The good and desirable qualities of the house apiary are, that it is always sheltered and dry, the hives being kept in good repair, which is a great advantage over out-door hives. Hives can be more quickly opened, requiring no covering save chaff-cushions in winter and single cloth in summer. Surplus honey, either extracted or comb, can be removed quickly, since we store it in the centre of the room, instead of the laborious carriage necessitated by out-door hives. Empty frames, empty combs, combs filled for destitute colonies, frames of section boxes, in short, everything required in working about the hives, may be stored in the centre of the room, within arms' reach of every one of the thirty-six hives.' No small convenience and saving of labour, as will be readily granted by those who know the amount of labour attendant on the management of thirty-six hives. Next, he remarks, 'we can handle the bees and do all kinds of work with them during rainy weather, when out-door hives could not be touched; and further, we can handle the bees by lamp-light, after the duties of the day are over, making new colonies, and thus avoiding robbers which are often troublesome during the day-time. Artificial swarming, queen-rearing, and other operations, can be carried on very expeditiously, and at a small expense, for the reasons we have mentioned.' These are great advantages, and I believe the day is not far distant when we shall see our leading apiarians adopting, to a great extent at least, the house system. To carry it out successfully must be the work of skilled and practised men. But let the novice, the mere beginner, gain an acquaintance with his work, by practising on his out-door hive, before he embarks on a larger scale, and extensively invests his money in the house system.

I have treated this part of my subject somewhat more at large than originally I had intended, thus curtailing the latter part,—the Hive,—which is the less to be regretted inasmuch as three papers on this interesting and all-important theme have lately been read before the members of this Society.

If in what I am about to say I shall appear to controvert any of the positions taken up by the authors of those able papers, I need scarcely ask them to set down my motives to an earnest desire to arrive at the truth, and not to any feeling of a more personal nature. I have no interest in the sale of any particular hive, my sole object being the production—*pro bono publico*—of the best and cheapest hive; a hive which shall afford—

1st. Protection from weather of all kinds and from sudden changes of temperature;

2nd. The greatest possible simplicity of construction compatible with strength and soundness of materials;

3rd. The greatest facility of manipulation, whatever the object aimed at; and

4th. Adaptability to the purposes required, whether it be production of comb, extracted honey, or queen-rearing, or all combined.

And when, at a moderate cost, we have procured a hive possessing these qualities, I think you will all agree with me that we shall have attained a great *desideratum*, if not perfection.

Under my first head of protection from weather will come material. Let us then inquire what was considered by the ancients to be the best material for their hives. Not to go further back than Virgil, we find him recommending cork. The word used is 'cortex,' which may be translated 'bark' of any kind, but the bark of the *cork* tree was especially designated by the word 'cortex' by way of eminence. Columella also places cork first. He says, 'If cork-trees are plentiful in the district the best kind of hive will undoubtedly be a cork-hive, since cork is not affected either by heat or cold.' That this view of two of the most able and extensive writers on bees amongst the ancients, dating back a period of nearly 2000 years, should coincide with the conclusions of modern apiarian science, arrived at after actual experiment, is sufficiently remarkable.

I believe it is generally allowed that the best hive wall, and almost non-conductive of heat or cold, is the double one with cork dust between, which form, in fact, a treble wall. Now, to me it has always been a puzzle, why we should not apply an inside coating, or wall, of cork to our single-walled hives; and year after year, at our great hive shows, I have looked for a hive of this class, but in vain. The only reference to such a hive, amongst the written bee-lore which I possess, is the one in the *Journal of Horticulture* for December 23, 1869, where a correspondent relates of a cork hive, which he had proved, 'I find that last winter the bees were kept free from damp and disease, and were very strong, in fact it was my best hive. Such hives are very easy to make. Let a wooden frame be made just the same as for a straw Woodbury hive, and then have five pieces of common cork, cut the size of the openings (where the straw is placed in the Woodbury), and fit them in; then drive one or two wooden pegs in, on each side, to keep the cork in its place. For the top it is better to drive two pieces of strong wire, edge-wise, through the frame and the cork, to prevent it sinking in the middle with the weight of the feeding-bottle; then cut a two-inch hole in the middle, and the hive is complete. The pieces of cork for the sides cost sixpence each and for the top one shilling and sixpence, so the whole hive can be made for a few shillings.'

Now the hive which I should like to see would be the one thus described, minus its 'crown-board' of cork, for which I would supply the quilt, and plus four outer walls of straw or pine; and I trust that some of our enterprising hive-manufacturers will, before long, present us with such or similar *combination* hives. I am persuaded that with such a hive, beneath the shelter of a house, we shall have made a decided step in advance in the matter of domicile for the bee. So much for material.

My next point is simplicity of construction. By this I mean that there must be no complicated mechanical appliances of any kind, no racks, no sides opening on hinges, the least possible opportunity afforded to the bees of rendering their combs immoveable by propolis. What we require is a simple four-sided frame-hive, from which the frames may be raised vertically, or moved horizontally, with the least possible disturbance of the bees, and the avoidance of the crushing of a single bee. If we can attain this, I think you will agree with me, that we shall also have attained great facility of manipulation. For the

sake of brevity, then, we may consider simplicity of construction and facility of manipulation as synonymous terms.

And here, I fear, I am about to throw down the apple of discord, in entering upon the consideration of the best size of frame for all purposes, and in earnestly recommending this Association to take steps for putting forth a Standard frame. After the very great work which the British Bee-keepers' Association has already effected, and in view of the important functions which it has yet to perform, it may well be credited with sufficient authority to name a standard frame. The many disadvantages accruing to the bee-keeping world in general, from the want of a recognised standard frame, are so patent to all that they require no enumeration here. So much is this want felt, that several well-known apiarians have put forth their quasi standards, in despair, I presume, of the Association taking action in the matter.

Now I believe, at the present time, there is a great opening for the Association to take up the subject; and I will tell you why. Amongst the most successful and devoted apiarians of the present day, as regards both science and practice, I think—taking for our guidance the prize-lists of our most important shows—we may set down the names of Messrs. Abbott, Cowan, Cheshire, Hooker, Neighbour, &c. Now of what sizes are the frames used and recommended by these gentlemen? Allow me to say that I quote inside dimensions. Mr. Cowan's frame—I speak subject to correction—measures $13\frac{1}{4}$ in. × $7\frac{1}{2}$ in.; Mr. Cheshire uses the Woodbury, $13 \times 7\frac{1}{4}$; Mr. Hooker's, $13\frac{1}{2} \times 8\frac{1}{2}$; Messrs. Abbott and Neighbour have, I believe, lately put forth hives with the Woodbury frame. It appears to me a singular, but very suggestive, fact that these gentlemen—long experienced and practical men withal—should all be using and recommending a frame of size closely approximating to the old Woodbury frame. And more than this, I believe, from conversations held with other advanced apiarians, that there is a general consensus of agreement in favour of a frame nearly approaching, at least, the Woodbury in size.

My reference hitherto has been to rectangular frames, generally known as square frames; but, in my opinion, the tapered frame has a decided advantage over the rectangular as regards facility of manipulation; and its inventor, Mr. Abbott, if he had conferred no other favour on bee-keepers, would have deserved our warmest thanks. The tapered frame requires the front and back of the hive to be tapered also, in order that the ends of the frames may be kept at the same distance from them. This arrangement causes so much less danger of crushing bees, and little or no disturbance in manipulation, that none but those who have used both kinds of frame can understand the undoubted advantage of the taper over the rectangular form.

In America, as in our own country, frames of various size are used: but the Langstroth frame, 17 · 9, is more used than all others taken together. The next in order is, perhaps, the one recommended by Prof. Cook, 11 or 12 inches square. The former I think too large and the latter of inconvenient shape. Speaking from practical experience, and taking into consideration facility of manipulation, adaptation for supers of whatever kind, doubling, with a view to obtaining extracted honey, artificial swarming, queen-raising, and safety in wintering, I have found a taper frame of the following size the best, viz. length at top 14 in., at bottom $13\frac{1}{4}$ in., depth $8\frac{1}{4}$ in. A hive containing ten of these frames, and two division-boards to be replaced by two additional frames during the summer months, if requisite, will be found a convenient size, containing over 2000 cubic inches. The separate-stand-hive used in my apiary contains, in its front compartment, ten or twelve frames of these dimensions, and is thus described:—The hive, consisting of stand, roof, or super-cover, complete, is divided into two compartments, with appliances for summer and winter use. Its outer walls are double, with inch space between, which is filled with cork-dust. The front compartment contains ten frames, and two division-boards which may be exchanged for frames when desired. Its capacity is 2500 cubic inches, or rather more than one bushel. The back compartment contains three frames of the same size as those in front, and also a division-board. The frames range from front to back in the foremost part of the hive, and in the opposite direction, or parallel to the entrance in the after compartment. This after compartment has several uses, viz. for depriving purposes, starting sections, or it may be used as a nucleus for queen-raising, a separate entrance with removeable alighting board and porch being provided. A zinc divider with rectangular perforations, which may be opened or closed at pleasure, is inserted in the partition-wall between the two compartments. The frames rest upon zinc runners, or upon the chamfered upper edges of the front and back of the hive. The distance-guides to the frames are simply small strips of wood tacked on to the ends of the top bars. These, in practice, I have found preferable to the broad-shouldered frames, as being less liable to break, and also to the distance-pins or staples, which I consider as simple abominations.

But to return to the subject of the standard frame. It may be laid down as an axiom, 'That moveable-comb-hives *only* are worthy of consideration in these days of advanced bee-culture.' And since the frame may be said to form the principal part of the hive, *à fortiori*, it may be proved to be of the utmost importance that the most convenient and useful size and shape of frame should be determined and put forth as a standard by this Association; and if no other member will move a resolution to this effect, I shall hope, after consultation with our worthy Secretary, to do so at no very distant time.

Of other kinds of hive than the simple four-sided, moveable frame, I have said nothing, but I feel most strongly that a good and inexpensive straw skep—a sort of transition hive between the old skep and the frame-hive, something on the lines of the old Grecian hive—is much needed, as a connecting link which may serve to lead our cottage people from the present debased style of bee-keeping to higher and better things.

Then there is the Stewarton. What shall I say of the Stewarton? My friend, Mr. Bartrum, calls it 'the hive of the busy man.' Well, I will confess, that if my usual number of stocks—from thirty to forty—were located in Stewarton boxes, I should expect to be a *very* busy man, indeed. As they are at present in simple frame-hives, I manage, with the help of a handy boy, by devoting an hour or two in early morning and late evening to keep them in tolerable condition; but if, instead of one box for each stock, I had three to manipulate, and these so firmly glued together with a substance which we call propolis, but which Virgil called

'gluten,
Et visco et Phrygiæ servant pice lentius Idæ;'

—that is to say, that the bees procure this glue, which is more adhesive than birdlime or the pitch of Phrygian Ida, for stopping up the chinks of their hives—then, I say, and without fear of contradiction, that I should be the busiest of busy men. As a matter of fact, I commenced with the Stewarton in the year 1865, after a correspondence in the *Field* newspaper, at that time not long established, and I have kept the hive in use ever since, but merely as a variety. Many a fine box of comb-honey have I taken from the Stewarton, and have always found that the bees winter well in it, but as regards manipulation it is a sealed book, far more so, indeed, than the cottage skep.

Another attempt at a revival, both in America and in our own country, is that of the Giotto hive, or rather of its principle of the close-ended frames. I remember, in the summer of the year 1853, assisting a friend, an apiarian enthusiast, residing within a few miles of Birmingham,

to open and examine a Huber's leaf-hive, which contained a strong colony of bees. The cloud of bees which rushed to the attack, on the forcing asunder of each frame on its hinges, was certainly a caution to me as a novice, and of which I may truly say, 'Though lost to sight, to memory dear.' Well, gentlemen, I do not think this principle is going to make much progress. I have worked Giotto hives, with the close-ended frames fitting close up to the back and front of an outer shell, and I found that the bees made so free use of propolis that the hives became fixed-comb hives, to all intents and purposes. I have worked hives with the same frame ends at various distances from front and back, and I have found that, with a quarter-inch space, these ends were as firmly propolised as in the former case; when two, three, or four inches of space were allowed, I have found that combs were built between the frame-ends and the outer shells, and this *invariably* during a plentiful yield of honey. And no wonder that it should be so, to those who are acquainted with the habits of the bee, for whoever knew the bees to leave a space in their hives unoccupied, when having the power to fill it? No, my friends, be well assured that the bee, equally with Nature herself, abhors a vacuum. And has it not been laid down as a maxim by all experienced apiarians that 'a bee, being able to pass through an opening of a quarter of an inch, if it be much less, is disposed to bridge it over with propolis, if it be much greater, combs will be built in the space?'

Gentlemen, I have done. If these few and crude remarks shall have caused you a little amusement, and if any hints which I have given shall bear fruit by means of the discussion evoked thereby, my purpose has been answered, and the small amount of labour bestowed will have been amply rewarded.

[The discussion on the foregoing paper will be given in our next issue.]

The Library.—The Librarian desires to acknowledge, with thanks, the receipt of the following books:—

From Mrs. Beach, Shirley, near Birmingham: The Antient Bee Master's Farewell. By John Keys. 1796.—Seventy Pounds a-year: how I made it by my Bees. By J. W. Pagden.—The Bishop's Advice: 'Keep Bees.' By K. B. Edwards.—A Short and Simple Letter to Cottagers. By the Rev. W. C. Cotton.

From John Camaschella, Esq.: Nuove Nozioni di Fisiologia Apistica. By Don Giotto Ulivi. Forli, 1881.

From the Rev. H. M. Stallybrass: Hints to Beginners on the Study and Practice of Apiculture. 1880.

The following works, acquired by purchase, have been added to the Library:—John Gedde, The English Apiary. London, 1721. With a new Discovery of an excellent Method of Bee-houses and Colonies. London, 1722.—Thomas Wildman, A Treatise on the Management of Bees. London, 1788.—[M. de Réaumur], The Natural History of Bees, translated from the French. 1744.—F. Huber, Nouvelles Observations sur les Abeilles. 2 vols. 1814.—[M. l'Abbé Della Rocca, Traité complet sur les Abeilles. 3 vols. Paris, 1790.—Carl T.-E. von Siebold, On a True Parthenogenesis in Moths and Bees. 1857.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

I see by this month's *Journal* there is a report which is incorrect. It was the Suffolk Bee-keepers' Association who kindly let us have the use of their tent at our Horticultural Show, *and not the British* as stated; and that only once, viz. August 1881. It was my intention to have had it the previous year, but it was engaged elsewhere.—SAML. BARGE, *Great Yarmouth, Jan. 8.*

CORNWALL BEE-KEEPERS' ASSOCIATION.

A general meeting of the members of this Association was held at the Town Hall, Truro, on Wednesday. Present the Hon. and Rev. J. T. Boscawen (in the chair), Rev. W. Rogers, Rev. C. R. Sowell, Rev. J. Symonds, Mrs. Polwhele, Mrs. J. W. Hockin, Mrs. Tom, Messrs. T. R. Polwhele, W. K. Baker, G. Dixon, J. Branwell, jun., J. W. Wilkinson, J. S. Jago, J. Hendy, A. P. Nix, W. Cock, and C. Kent, Hon. Sec. The minutes of the last meeting having been read and confirmed, the Secretary reported that since the meeting in November twenty-one new members had joined, including Sir James McGarel Hogg, M.P., *ll.*; and Mr. A. Pendarves Vivian, M.P., *ll.* 1s.; and that up to the present the annual subscriptions paid and promised amounted to over 20*l.* The Chairman stated that at a meeting of the committee held just prior to the general meeting, it had been decided that a series of lectures should be delivered in May by the Rev. J. G. Dangar, one of the Hon. Secs. of the Devon and Exeter Association, whose travelling and other expenses would be paid by the British Bee-keepers' Association, through whom the arrangements for the lectures were made. The towns selected were Launceston, Liskeard, Truro, Penzance, St. Austell, and Falmouth. It had also been determined that an exhibition should be held at Launceston in June, in connexion with the Royal Cornwall Agricultural Society's Show, at which prizes would be offered for the best stocks of bees to be shown for manipulation, and for the best and cheapest hive for cottagers. Other exhibitions would also be held in connexion with local horticultural shows, one of which was to take place at Liskeard. Mr. J. Hendy moved that the first annual exhibition and honey fair be held at Truro, either in August or September, as the committee thought most desirable. This was seconded by the Rev. J. Symonds and carried. Sir James McGarel Hogg, M.P., and Mr. A. Pendarves Vivian, M.P., were then added to the list of Vice-Presidents. The next business was the completion of the Committee of Management; and the Hon. Mrs. Gilbert (Trelissick), Mrs. Tom (Truro), Mrs. Polwhele (Polwhele), Miss Symons (Hatt), Rev. J. Symonds (Baldhu), Messrs. G. H. Fox (Falmouth), W. N. Griffin (Alphington), and E. H. Hockin (Hessenford), were unanimously elected. Votes of thanks to the Mayor for the use of the room, and to the Hon. and Rev. J. T. Boscawen for presiding, terminated the proceedings.

SURREY BEE-KEEPERS' ASSOCIATION. REPORT FOR 1881.

In submitting their third annual report the committee congratulate the members on the steady progress that has been made. The annual county show was held in Guildford, on the 14th of September last, in the grounds of Henry Parson, Esq., to whose kindness, liberal assistance, and co-operation the committee are greatly indebted. The prizes offered by the Association were not all competed for, but at the close of the show ten of these were gracefully presented to the successful competitors by Mrs. Parson. The display of honey, hives, and appliances, was satisfactory; and the interest of the show was greatly enhanced by the skilful manipulations and explanations given by Mr. Baldwin, the expert of the British Bee-keepers' Association, who attended with one of their Bee Tents, and gave great satisfaction to the visitors.

Local Shows.—An exhibition was held at Croydon, in June, in connexion with the Horticultural Show, when the new Bee Tent was satisfactorily used there for the first time. Messrs. F. Jackson, W. Hollands, and W. P. Wenham, rendered able assistance. The committee have received much encouragement from the kind interest evinced by gentlemen who have invited the exhibition of the County Association's Bee Tent, in their

private grounds, in connexion with some other gatherings, free of all expense to the Association. Among these successful and interesting exhibitions must be recorded that at Lythe Hill, Haslemere, under the patronage of the President of the Association. Also one at Godalming, under the auspices of the governing body of the Charter House, which was well attended. And one at Bushridge Hall, near Godalming, by the very kind invitation of J. C. Ramsden, Esq. All of these, the Committee are assured, gave general satisfaction, so that they may hope these local efforts will lead to greater results. A visit was also made with the Bee Tent to Camberley, in connexion with the Annual Horticultural Show at that place.

The committee have to regret the resignation, on his leaving England, of their able and indefatigable local secretary, Mr. E. S. Whealler, of Croydon, and they feel that their cordial thanks are due to him for his zealous efforts in extending their operations in that locality. They also regret that Mr. Jackson, who succeeded Mr. Whealler, has been obliged to resign his appointment. Mr. R. Hinton, of Everton, Croydon, has kindly accepted the office. The committee beg to acknowledge deep obligation to T. W. Cowan, Esq., of Horsham, and S. A. Sholl, Esq., of Godalming, for their kindness in acting as judges at the County Show; also to Mr. Jas. Abbott, of Southall, for like services at the Croydon and Charter House shows. The balance-sheet is herewith submitted, showing cash in hand of 22*l.* 11*s.* 5*d.*, with outstanding liabilities of 19*l.* 6*s.* 8*d.* The total number of subscribers is now 134. In conclusion, the committee regret that Mr. Leman finds it necessary to resign the office of hon. secretary, and they have therefore appointed Edward Daw, Esq., of Godalming, to act as hon. secretary in his place, but they tender to Mr. Leman the cordial thanks of the Association for the zealous and courteous manner in which for three years he has discharged the responsible and delicate duties devolving upon him in organizing the Surrey Bee-Keepers' Association.—24 *Jan.* 1882.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.

Lecture by W. H. Harris, Esq.—On the evening of the 12th ult., W. H. Harris, Esq., of Windsor, gave a very interesting lecture on bees, their structure and habits. The Hall was full and the audience were not slow in their appreciation of the subject. Mr. Harris was particularly happy in his description of the habits of the bees, and the distribution of a number of printed slips, such as figure on our *Journal* wrapper, showing the queen surrounded by her workers, elicited many expressions of pleasure, gratification, and loyalty. Nothing could have been more successful than was the meeting as a whole, and the results to the Association were, we understand, highly satisfactory.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

We are exceedingly pleased to be able to announce that Leicestershire can at length boast of a Bee-keepers' Association. At a meeting, held on Saturday, Jan. 21, by the kind permission of the Mayor, in the Old Town Hall parlour, Leicester, the Association was formed. As the bulk of those present were practical bee-keepers (some on a large scale), the proceedings were entirely of a business nature. Rules and regulations were first discussed and agreed upon. The election of officers next engaged the attention of the meeting. It was resolved that his Grace the Duke of Rutland be requested to act as president, and a number of other influential gentlemen as vice-presidents: and doubtless it is pleasant news to members of the Leicestershire B.K.A. to learn that his Grace has already kindly acceded to the request. A committee was then elected in part, and W. L. Lamson, Esq., M.R.C.S., of Waltham; Edwin Ball, Esq., of Waltham; and the Rev. A. M. Rendell, Rector of Coston, were elected treasurer, secretary, and auditor respectively. Affiliation with the British Bee-keepers' Association was discussed and determined on. The proceedings then terminated with votes of thanks to the Mayor, the chairman, and the Rev. A. M. Rendell, secretary. There were about thirty present, and the enthusiasm of the meeting was abundantly displayed by the lively interest evinced in the discussion by Mrs. Theobald, Mr. Alderman Kempson, J. H. Smith, Esq., and Messrs. Bryan, Carter, and Riley. Orders were given for the printing and circulation of rules, and an approximate date named for the next committee meeting. All communications should be addressed to Edwin Ball, Esq., Hon. Sec. Leic. B.K.A., Waltham, Melton Mowbray.

HEREFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of this Association was held in the Council Chamber at the Town Hall, St. Albans, on Monday, Jan. 16, under the presidency of the Earl of Verulam. There was a good attendance of members, including several ladies. George N. Martin, Esq., of the Bank, St. Albans, was elected Hon. Secretary *vice* the Rev. H. R. Peel, who is leaving the county. A summary of the Report and the proceedings at the annual meeting will be given in our next issue.

SUSSEX BEE-KEEPERS' ASSOCIATION.

We have received a preliminary circular, through the kindness of T. W. Cowan, Esq., which shows that a powerful organization is on foot to encourage bee-culture in the county of Sussex. The Association will be affiliated to the British Bee-keepers' Association, and will be under the presidency of the Right Hon. the Earl of Chichester; and there are for vice-presidents:—Right Hon. the Earl of Egmont, Right Hon. the Earl De La Warr, the Right Rev. the Bishop of Chichester, Right Hon. Lord De Blaquière, the Right Hon. the Speaker, G.C.B., Sir Henry Fletcher, Bart., M.P., Earl Winterton, Sir W. W. Burrell, Bart., M.P., Sir E. F. Campbell, Bart., J. R. Hollond, Esq., M.P., R. Loder, Esq. There is a provisional committee of eighteen gentlemen, many of them being well-known bee-keepers. The hon. treasurer is the Rev. J. F. Hodgson, of Horsham; the Rev. N. Andrews is hon. sec.; and the organizing secretary, T. W. Cowan, Esq., the chairman of the British Bee-keepers' Association, and a tower of strength in himself. With such an array of patronage and bee-keeping talent the success of the Association is already secured, and, we trust, has a long career of usefulness before it.

ESSEX BEE-KEEPERS' ASSOCIATION.

The first annual meeting of this Association was held in the Board-room of the Corn Exchange, Chelmsford, on Friday the 20th ult., but the Report did not reach us till the 28th, Saturday—too late for further notice.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the members of this Society was held at the Albert Memorial Museum, Exeter, on Monday, Jan. 2nd, 1882. Mr. W. H. Ellis presided, and there were also present the Right Worshipful the Mayor (T. Andrew, Esq.) and many of the Members, as well as an influential number of ladies and gentlemen interested in the Society.

The report was read by the Hon. Secretary.

The Chairman said that he was sorry to inform them that the Hon. Treasurer had been obliged, owing to the pressure of business, to relinquish his office.

The statement of accounts for the year ending the 31st December, was read by the Rev. J. G. Dangar. On the general account the total receipts amounted to 27*l.* 13*s.* 4*d.*, while the expenditure was 15*l.* 11*s.* 9*d.* The account in connexion with the Torquay Exhibition showed receipts 20*l.* 0*s.* 2*d.*, including a cheque from the Torquay Winter Garden Company of 16*l.* 14*s.* 11*d.* In respect to the lecture at Heanton Satchville and the shows at Charlton Flynton and Devonport, the receipts and expenditure were almost identical. The whole showed a balance in the bank of 11*l.* 16*s.* 7*d.*, upon which they were heartily congratulated by the Chairman.

Mr. W. Ellis was re-elected President, the Council were re-elected, and the election of Vice-President was left to them. The Hon. Secretaries were also re-elected, and the Rev. J. Dickenson was elected Hon. Treasurer.

Mr. W. R. Fox, R.N., read a paper on 'Cottage Bee-keeping.' He said that he had seen many complaints in the *Bee Journal* of the difficulty experienced in inducing cottagers to adopt frame hives, and use a better and more profitable system of managing their bees. As far as the more expensive hives were concerned, they must consider the attempt a failure, and had better give them up, and try and improve the cottager's skep, and educate him up to the bar-frame. The skep was worthy a more prominent place in their bee literature. In *Modern Bee-keeping, a Handbook for Cottagers*, the chapter on straw hives occupied one out of seventy-six pages. Although it would not bear any comparison with bar-frame hives, it was certainly without a rival as a winter domicile; and when they remembered the immense super of 86 lbs. nett taken from a skep, and exhibited by his namesake in 1875, they must acknowledge that it had done well in the past, and with care and attention might have a similar future. For their poorer neighbours it had the great advantage of being cheap. The present method of cottagers' bee-keeping in the South of Devon was deplorable. Generally speaking, his hives, considering the egg-laying powers of the queen, were absurdly small: very few had facilities for supering, and he had no idea of uniting weak stocks, or late swarms to stocks, every weak and late swarm being placed in a separate hive, and 'taken' in autumn instead of being united or returned. Artificial swarming was still a mystery to him, and he priced swarms according to the month they came off, size and weight not being taken into consideration. Except in heather districts, the honey season ended the last week in July, yet he did not 'brimstone' his bees until Michaelmas, the bees meanwhile living on their stores for over a month. His idea of winter feeding consisted in placing a handful of moist sugar outside the hive near the entrance, the excitement thus caused being bad for the bees, and the sugar, when stored in the combs, being liable to ferment: his stands were often placed in positions where no sun could reach them, and under trees, often imperfectly protected from the rain: and last, but not least, there was his short-sighted, ungrateful, and cruel plan of brimstoning them in return for their hard summer work and the store they had laid up for their owner. He (Mr. Fox) would propose, as a remedy, that the Association should approve a standard skep for this county, one with a flat wooden top, 15 in. in diameter, the sides straight and 9 in. in height, having a cubical capacity of 2025 in., and with a hole in the top for supering and feeding. This should be exhibited at their shows, and they should influence skep-makers to sell the hive the Association recommended. They should also write a few leaflets on skep management and uniting swarms. If the Association agreed with his remarks, he would suggest that they should use their influence with the editor of *Modern Bee-keeping*, and try to secure in the next edition fuller directions for cottagers as to what they should look for in purchasing skeps, and a few simple directions for uniting swarms.

Votes of thanks to Mr. Fox for his paper, and to the President for presiding, concluded the proceedings.

A WORD FROM WILTS.

'The Man in the Moon,' a very lively contributor to the *Trowbridge Chronicle*, writes as follows in a recent number of that journal in reference to the labours of Mr. R. Mansfield, of Melksham:—

'I think it should be generally known that the Wilts Bee-keepers' Association sprung up through the proposition of a bee-fancier at Melksham. That Bee Tent which created such a buzz of satisfaction at the last Keevil Flower Show held there, struck the key-note of the Wilts Bee-keepers' Association, and now the county is all in a buzz of industry spreading the principles of the Association. You may depend upon it there are not many drones in that hive, at the rate it is progressing, and hives of workers are being established all over the county. Like Brother Jonathan's Spelling-bees, this hive of working bees will create a rare buzz in the country, and set many a cottager on his legs in the way of scientific bee-keeping. Might not this field of enterprise be properly called *man's field*, for you cannot expect women to take a very active part in it, though rustic matrons, as the queen-bees of the cottage, do make it a source of income but in the old-fashioned way?'

PROSPECTS IN SOMERSET.

There is every reason to hope that Somerset will soon be numbered amongst the affiliated Associations. Words of cheer reach us from several quarters of the fair western shire, and it is quite evident that new interest in bee-keeping has been awakened, and a fresh spirit of inquiry aroused. At the annual meeting of the Taunton Horticultural Society, on January 16, a letter was read from Mr. Charles Lewis, of Fore Street, Taunton, in which he stated that he thought it desirable to hold a bee show in conjunction with the next horticultural exhibition. The Somerset Bee-keepers' Association had had it under consideration, and he now wished the matter to come before the general meeting of the Horticultural Society. Mr. Lance proposed, 'That it is desirable to allow an exhibition of bees at the same time and place as the horticultural show, provided that satisfactory arrangements can be entered into between the two societies.' Mr. Stevens seconded the proposition, but it was decided to allow the matter to stand over until the committee meeting. It was arranged that the next annual show should take place on August 10, reserving to the committee the power of altering the date, should it be found desirable to do so. The bee-keepers in the neighbourhood of Somerton, who have had one or two little shows of bees, honey, &c., are also 'taking time by the forelock,' and preparing to do grander things next summer.

Another sign of progress is the commencement of a series of articles on bees and bee-keeping in one of the local papers.

JOTTINGS FROM DORSET.

We are not asleep, Mr. Editor, although you have heard very little from us lately. Our honorary secretary and treasurer, Mr. W. H. Dunman, jun., of Troytown, has been hard at work since the summer shows came to an end, and the report to be read at our annual meeting will be of a most encouraging description. As we shall be gathering together about the time the *Journal* for February goes to press, I will give you a rough outline of it, as I have seen the draft. Having referred to 1881 as the most successful year in the Society's

history, the committee give many interesting particulars respecting the shows held at Sherborne and Corfe Castle last summer, and then state that forty-six new members had joined during the year. As evidence of the interest aroused in the county, it is mentioned that the hon. secretary has had to reply to nearly 900 letters during the past twelve months. The ready sale for honey is then referred to, and it is announced that an assistant secretary and an expert have been appointed. Dépôts for the sale of hives, bee furniture, &c., have been opened, and others are being arranged for. Lectures have been delivered, and others are shortly coming off. The president, the Right Hon. the Earl of Shaftesbury, has started several cottage bee-keepers in the neighbourhood of his seat, St. Giles's; and Lord Allington has introduced bee-keeping to an influential circle by means of his observatory at Crichel. The committee make an earnest appeal for funds wherewith to purchase a Bee Tent, return thanks to the editors of the principal county papers for the space they have recently devoted to bee-keeping, and, in conclusion, 'trust that the subscribers will take every opportunity of reminding neighbours and friends of the objects of the Association, and that they will do their best to increase the number of members.'

EXPERIENCES OF 1881.—BEES AT PLYMOUTH.

The second year of my bee-keeping in Plymouth is over. Last year was good enough, but this year I have done even better. Starting with two hives in 1880 I reaped as my harvest in the autumn over 200 lbs. of honey, and formed two strong hives with which to carry on operations in 1881. These wintered well and grew into fine strong hives by the middle of May. I took swarms from them about the end of the month, and these were followed by another from each shortly afterwards. One of the latter was lost during my absence from home for two or three days, and this, of course, reduced my profits very considerably. One first swarm I sold; this left me four hives for honey-getting. They gathered honey from the middle of May to the end of July, when the weather permitted. I took quantities in supers and sections, and in August used the extractor upon most of the combs of the body boxes. The total yield was 240 lbs. of comb and honey. Two of the stocks I joined into one and then fed them. I have now, I believe, three hives in good condition with which to begin the new year. My expenses this year for hives, supers, foundation comb, ground-rent, and other costs, have been 5*l.* 18*s.* The income from bees and honey sold has been over 13*l.*; in addition to this, I must have given away and consumed quite another three pounds worth of honey. This shows that, like breweries, apiaries also can pay in Plymouth.

I have a few experiences of these two years that you may like to record. First, as to the length of life of the worker bee. In 1881, after a first swarm, I cut out all the royal cells from the parent hive but one. This one apparently failed. As soon as I was aware of it, I gave them eggs in drone comb out of another hive for the sake of the experiment. Again they failed to rear a queen. Next I gave them worker eggs and left them for a month. Early in August I removed a good super of honey, and took the opportunity to look below again. There was no sign of eggs or brood, and the hive was nearly full of honey. At the end of the month I drove them into some empty combs and extracted 30 or 40 lbs. of honey from those they had left. In the second week of September I brushed them off these empty combs into a box, intending to unite them with another stock. They stayed for a few days here; but when I came to operate finally upon them I found that they had started five new combs, stored quite 2 lbs. of honey, and had a queen, eggs, and young brood. How this queen had sprung into existence I cannot tell. She may have been with them, but barren, ever since the beginning of June. But this is certain: no egg was laid in the original hive from the beginning of June to the end of August. During all this time the bees were as active as any, and after three months of wear and tear a quarter of the population was still alive. Perhaps worker bees have a rather longer life than they are credited with.

Secondly, we all are anxious to have near our bees pollen-yielding flowers in the early spring. I can speak most highly in favour of the common gorse. The bushes are golden with flowers in March, and the bees seem to get any amount of food from them. Down here they have been in flower nearly all the winter, and to-day there are sprays and branches covered with bloom. By the way, supplying artificial pollen does not seem to be a very modern discovery; an old gardener here tells me that when he was a boy he used to see his father in the spring turn up the bee-huts and throw in a handful of barley meal, and pour in syrup among the combs.

Thirdly.—About the enemies of bees. Sparrows are a plague here as everywhere. But I hear that in the Scilly Isles they are such a pest that bees cannot live on account of them. In the autumn I was calling on a gentleman, and I asked him whether he had any bees. 'Yes,' he answered. 'I have several bottles full in the kitchen garden.' Their foes are many.

Fourthly.—The tenacity of life in drone brood is perfectly marvellous. I have stood combs in a running brook for hours, turned a tap of cold water upon the young grubs and eggs in open cells, left combs out for the night, and yet in each case numbers of drones have survived and spoilt the honey-comb. I think worker grubs and queen grubs are much less hardy.

Fifthly.—The swarming fever among bees during the past summer has been almost unparalleled in past history I should think. In spite of the cutting out of royal cells and other dodges, yet in a most unaccountable way they have swarmed. An odd feature in their swarming was this—the lateness of the swarms. In several instances, I noticed that after the summer weather had thoroughly broken up, casts that followed maiden swarms still went out. Bees are not sure weather prophets.

The last experience that I wish to trouble you with is one that was most troublesome to myself. I had four lots of condemned bees to feed up in two hives. It was in the middle of September and the weather was fine. I had from you several pounds of very stout-looking foundation, it was firmly set in the frames, the feeding went on famously, and looking from the outside combs all seemed proceeding most satisfactorily. After some days I examined the inside. The confusion within was frightful. All the interior combs had broken down in both hives, and the arching rolls of wax formed the sepulchre of hundreds of bees and the queen in one case. The sheets had broken away about an inch from the bar all the way along. The reason of it seemed to be that the bees drew out the cells and stored the syrup towards the middle and lower part of the combs, and left the top inch almost unworked. The weight caused them to tear where they were weak. After clearing out the mess I tried carefully again, with the same result on a smaller scale. At last I had to give them 2-inch strips of foundation and be satisfied with that. It ruined the hives, as the bees were hindered, and lost the fine weather, and perished in numbers from the constant avalanches. Were they fed too quickly? or was the foundation rather brittle? The wax seemed to me to be very 'mealy.'—Buzz, 10 *Caprera Terrace, Plymouth, Dec.* 31, 1881.

The foundation used was of the kind variously known as 'Raitt's,' 'Root's,' or 'American,' having conical cell bases. It was made thick, or 'stout-looking,' to increase its strength, and if the bees had begun at the top all would have been well. Is it not probable that top-feeding may have prevented top-building under the circumstances, and is there not a lesson to be learned from the catastrophe?—Ed.

Correspondence.

**** These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

GLOUCESTERSHIRE.

Among all the wonders of the world, I am astonished at the fact, that this county, which is one of the best in the country for bee-culture, is almost the very last to attempt to unite to form an Association. We have people in affluent circumstances, apiarists with every opportunity to keep the wheel going round when once in motion, yet no one seems to attempt to break the ice. I am sure, if once they were acquainted with the celebrities who act as patrons to the British Bee-keepers' Association, they would soon cast in their lot with us. Let us hope they will shortly get their eyes open to the necessity of forming an Association, and record the fact of some good specimens exhibited in the *British Bee Journal* at the various shows about the country from the county of Gloucester during the present year.—An Old Bee-keeper, *Cirencester.*

THE SEASON AT HORSHAM. THE INVENTION OF DIVIDERS.

On Saturday I took advantage of the fine day and examined my bees, and found brood in all but one, and in some a considerable quantity. I hope the bees will not suffer for it in the spring. They have not been fed, but are crowded. I do not like to see them quite so forward.

I see in Replies to Queries you say the first separators you ever saw were the invention of Mr. J. Stewart in 1876. I am sure you will excuse my pointing out, that I exhibited at the Crystal Palace in 1875 a set of sections with glass separators; and in 1876, at the Alexandra Palace, I took first prize for sections worked in this way. My sections were placed on a board, and pieces of glass extended from top to bottom, and I used these always until the tin separators were introduced from America. I also used glass between the combs in supers, and I have some of these discarded supers by me now. Neighbour got a prize for his divisional super the same year. My sections were kept together by means of a hinged framework. Neighbour and Lee copied these sections, and exhibited them subsequently on a perforated zinc adapter. I always made a point of using separators; and perhaps you will recollect with the sections I exhibited the pieces of wood for the sides for packing. I am sure you will excuse my pointing this out, as you wish to have a correct record. I do not mean to say I was certainly the first to use them, but I believe I was. Thos. Wm. Cowan, *Horsham, Jan. 23rd*, 1881.

[We do not remember the circumstances referred to, but doubtless they are correct, and we have much pleasure in publishing the correction.—Ed.]

THE MILD SEASON—BEES, BIRDS, AND FLOWERS.

Among the many notable things which have marked this unusually mild winter—the blooming of spring flowers, and nest-building and egg-laying of birds—none can be more significant than the following, which has come under my notice this last week:—Having heard a rumour of the issue of a swarm of bees, Mr. Clarke and I proceeded to the house of a cottager near this town, and found that the rumour was based upon fact. We ascertained that the swarm came forth on January 11th. The proprietress, not approving of such premature proceedings on the part of her bees, compelled them to return to the hive by drenching them with water. She saw no drones.

The hive, a straw skep, is on a stand in a very sheltered corner; it is undoubtedly very full of bees. They do not appear to be starved, they were even then being fed by the usual weapon—the elder scoop; but we were not permitted to raise the hive, duly plastered down to the floor-board with mud, so we could not see much.

We drove the bees at this place last autumn, and many bees from the adjoining hives, which were driven, joined this one, which was weak, and gladly welcomed this accession of strength.—J. W. Measures, *Long Sutton, Jan. 19th*, 1882.

THE COPYABLE HIVE—MAKING THE FRAMES.

I have read your directions (in Nov. and Jan. *Journals*) for making a hive, and can easily follow them; but it has occurred to me that an easier way to make the frame ends instead of leather would be to cut them with a coarse fret-work saw. Most amateurs who have any carpentering taste possess such a saw.—S. Harding, *Chelmsford.*

THE COPYABLE HIVE.

I see you invite discussion about your hive-frames as per *Journal*. From previous *Journals*, I judged that you thought favourably of the Giotto frame. As I understand, instead of the widened ends you propose ends same width as top, viz., one inch. That, of course, leaves the circulating space outside, which I see you have complained of frequently. Of course, the widened shoulders, viz., bits of leather, shut the draught off upwards; but does not the Giotto do that as efficiently, as the frame sides come level with the top bar? I perhaps, for want of knowing better, have only one objection to the Giotto, which is this, that in sliding the frame bees would certainly be crushed. I suppose, instead of that, they would have to be put plumb down in the position wanted. A point in favour of the latter is, that with Giotto frames a single-walled hive is practically a double-walled one.—J. C. Lambert, *Sunk Island, Jan. 13th*, 1882.

[There is little doubt but that a careless bee-keeper will crush bees at every turn, but it is certainly not necessary to do so. After a year's experience with the improved Giotto frame, we are strengthened in our expressed opinion of its value. Dzierzon scouts the open-ended frame, and he is no mean authority. Ed.]

THE CELL OF THE BEE.

When we behold this little insect constructing its cell, to contain its winter stock of honey, constructing it of that form which is demonstrably the strongest, and the most convenient, it seems the extravagance of absurdity to suppose that the instinct by which it is directed is the offspring of ignorance.

The phenomenon, indeed, is one of the most extraordinary that the animal world presents to our contemplation. It must be evident to every one who has given the least attention to the obvious properties of different figures, that there are only three which will admit the junction of their sides, without any vacant spaces between them, all the figures being equal and similar, namely, the square, the equilateral triangle, and the hexahedron: of these the last is the strongest and the most convenient. In this form, then, we find that all the cells are constructed. This is a curious and wonderful fact; and what is equally remarkable, the middle of every cell on one side, is directly opposite to the point where the three partitions meet on the opposite side. By this position the cell receives additional strength. This is not all. If human ingenuity were to contrive a cell, which would require the least expenditure of material and labour, it would be a question, not easily solved, at what precise angle the three planes which compose the bottom ought to meet. The late celebrated mathematician, Maclaurin, by a fluxionary calculus determined precisely the angle required; and he found, by the most exact mensuration the subject would admit, that it is the very angle in which three planes in the bottom of cell of a honey-comb do actually meet. The same curious fact was ascertained by a German mathematician: Reaumur, presuming that the angles were adopted for the purpose of saving material, proposed to Koenig, a mathematician of eminence, that he should determine what would be the angles of a hexagonal cell, with a pyramidal base, to require the least material. By the infinitesimal calculus, he ascertained that the greatest angle should be 109° 26′, and the smaller 70° 34′—the very angles which the insect adopts. What an astonishing coincidence is this! A profound mathematician is required to solve a very difficult problem; and it is found that his conclusion, gained by the exercise of considerable ingenuity and deep thought, was practically exhibited in the operations of the bee. How few are capable of that scientific investigation which this insect illustrates by its practice! It seems the extravagance of folly to believe, that out of the numerous different combinations of which two angles are susceptible, that which *most* saves labour and material should be adopted by random chance, or blind necessity. 'He' that holds the ocean in the hollow of His hand,—'He' it is in the darkness of the hive guides this little insect to fashion and mould the cell and form the comb in the beautiful and wonderful form in which we behold it.—W. H. Baigent, *St. Denys, Southampton, January 12th*, 1882.

HONEY PRESSER.

In the January number I observe an article on the above from Mr. Orr, and I do not deny him the the honour of having invented and made a honey presser thirty years ago; but as I never saw his or heard of it, it remains true that I have made one, but whether it is the same as his or not, remains to be proved, as I do not think he has ever seen mine. Some twenty-five years ago I made an article to order for the purpose of pressing honey; but only since I commenced to keep bees, some few years ago, did it strike me some machine could be made to do away with hand-pressing, when I commenced and made what Mr. Russell bought, and was highly pleased with; and I shall be very glad to show it to Mr. Orr, and if he finds it to be similar to his, then it may be said we are one in mind at least.—Andrew Watt, *Blacksmith, Carluke.*

BEE SWARMING ON SUNDAYS AND BELL-RINGING.

I have kept bees for over four years, and have had during that time many swarms—as many as twenty-two in 1880 (the greatest swarming year in these parts) but only *one* happened on a Sunday, and not one last year, or in any other previous year. And this occurred at 1 p.m., when no church-bells were chiming. Further, my hives are all within fifty yards of the church-tower, in which are three bells, chimed for half an hour morning and afternoon on Sundays. So that I, at all events, am not disposed to charge our little friends with such wilful misconduct as choosing Sunday for packing up and flitting. An old-fashioned bee-keeper in the parish, keeping about a dozen hives, regularly stays away from church every Sunday morning during the swarming season, believing in the tradition that the bees *do* prefer Sunday, but has had a swarm but twice on that day in the last four years.—L. W. Stanton, *Coombe Keynes Vicarage, Wareham.*

PERFORATED EXCLUDER ZINC.

I was, I think, the originator of the perforated zinc for making drone-traps and dividing the hive from supers, but at that time used a size larger than Mr. Cowan and the gentleman who sent specimen pieces to your subscribers. I think he was an auctioneer, but I forget his name; however, before either of the gentlemen made their ideas public, Mr. Cheshire had been to Oakley Square and seen mine—*i.e.* drone-trap and perforated divider to keep out queen; though I find it won't always do it, and so I do not now use it. The traps are perfect. So New Zealand flax is of no use. I tried very hard to get it to grow, but it would not.—Charles H. Edwards, *The Chalet, Mill Hill, N.W.*

[The 'auctioneer' was Mr. O. Poole, whom we credited with being the first to publish the use of the material.—Ed.]

A VISIT TO A CITY APIARY.

Being deputed by the Committee of the Lincolnshire Bee-keepers' Association with the Honorary Secretary (Mr. Godfrey) to attend a meeting at

Lincoln of the Prize Committee of the Lincolnshire Agricultural Society for the purpose of arranging an exhibition of bees, hives, and honey at their annual show, to be held at Sleaford in July next; and having satisfactorily performed that duty, our footsteps were turned uphill—and unless any one has been to Lincoln they do not know what uphill in that city means—to visit the apiary of Dr. Russell, the resident surgeon at the Asylum.

It was late in the afternoon, the weather was too hazy to enjoy the view from the delightful eminence on which the Asylum is situate, the spire of Newark Church and the Mound of Belvoir Castle being visible in favourable weather. The Asylum grounds are sheltered from the east by the massive walls of the old Castle, which now enclose the County Gaol; and in a garden bounded on three sides by high walls, and on the fourth by the Asylum buildings we found Dr. Russell's apiary, consisting entirely of bar-frame hives, standing separately, some twelve or fourteen in number.

This gentleman is only a recruit, and ought to be held up to the bee-keeping world as a specimen of what may be done if properly set about. All his bee knowledge has been derived from what he has seen at exhibitions, and he is an adept at bee-management as any bee-master may see at a glance. His success during the past year was well deserved, he was a successful exhibitor at the Show of the Lincolnshire Association at Louth, carrying off a silver medal and several other prizes. The produce of his apiary during the past year has repaid all his expenses, and he is now receiving constant applications for more honey; but he has none left to dispose of. His stocks of bees were all strong and healthy, and he is looking forward to a good harvest in the forthcoming season, and he is certain to come to the front in strong form when the Lincolnshire hold their show in the autumn as they anticipate doing in the venerable city of Lincoln, as well as be a formidable competitor at the show of the Lincolnshire Agricultural Society at Sleaford, in July next, if he should enter the Lists.

After enjoying an hour's conversation with the doctor he was called away to attend a man who had fallen out of a cart near the Asylum gates, and we were obliged to leave for our return home without having the pleasure of saying farewell to our friend.

Dr. Russell is the local secretary of the Lincolnshire Bee-keepers' Association at Lincoln, and we feel certain his efforts will ensure success to the Association in his neighbourhood.—J. G. Desborough.

POPPIES AND BEES.

Can any one say if double and single poppy are injurious to the bee? A clergyman in this neighbourhood who keeps a number of hives, and takes a great interest in bees, tells me that the poppy makes them lazy and unfit for work. As this is my first year at the bees, and as I grow a large quantity of the poppy, I shall feel much obliged for information thereupon. J. Templecombe.

GREEN HONEY AND COMMON LAUREL.

With reference to the green colour of honey observed by some of your correspondents, have any of them noticed whether the bees had access to much common laurel, and whether they worked on it more than usual prior to the green shade being observed? In May of 1877 my bees were working most energetically upon the common laurel, far beyond anything I have noticed since, though since that time I have always noticed them every spring working on the laurel when the young leaves are enlarging. That time was the first that I had noticed the exudation from the under side of the leaf, and my section honey that year was all of a very decided sea green colour, and had a very delicate flavour of laurel leaf or prussic acid, which, together with the colour, I attributed, whether rightly or wrongly, to the large amount of honey gathered that year from the laurel.

I have not resided in Devonshire since that year, and my bees have not the same large expanse of laurel to work upon, and since that year I have never had any green tint in my honey. It would be interesting to learn whether the laurel does give this colour when present in large quantities, and also to know more of this secretion of the laurel leaf, which, as your correspondent, on page 72, vol. v. of *British Bee Journal*, says, is never absent from the leaf of the common laurel, not the sweet bay laurel, but the common laurel used to give the flavour of bitter almonds or prussic acid in making custards, &c.—C. E. Fletcher, *Salop.*

MADAGASCAR BEES.

In a magazine, *Temple Bar*, I read an account of 'An English slave in Madagascar.' This man was cast away there in the last century, and was treated as a slave. It particularly is stated that he helped his finances by keeping bees, having as many as 200 hives. Is anything known of bees in this country? If so, are they of any special breed or of any quality worth importing? Perhaps some of your numerous readers might give information on the subject.—Osbert Waed.

BEE-KEEPING AT OSWESTRY.

We have been favoured with a copy of the Oswestry *Commercial Circular*, an advertising medium given away to every householder, in which a local bee-master unnamed is contributing a series of articles on bee-management, and will doubtless attract much attention to the subject besides doing good service to those already keeping bees. There are hundreds of 'local bee-masters' who might, with the *Bee Journal* as an authority to fall back on, write readable and useful articles for publication in their local papers, or in the interest of the craft might get articles, to wit, How to make a First-class Hive, inserted bodily, or piecemeal. Local Associations might undertake this kind of work, it would strengthen their hands, spread the knowledge they are wishful to disperse, and be beneficial in the direction implied by their existence.—Ed. *B. B. J.*

DZIERZON'S *RATIONAL BEE-KEEPING.*

Will you allow me to correct a mistake in the notice of the translation of Dzierzon this month? It should have read that the translation is by Mr. Dieck and myself. On writing to Dr. Dzierzon he referred me to Mr. A. Neighbour, to whom he had already given permission to translate. I found from Mr. Neighbour that Mr. Dieck had completed a fifth of the work for him, but business engagements would not allow time to finish, and if what was done would be of service I was quite welcome to make use of it. This offer was gladly accepted, and I should not like the fact to be lost sight of that Mr. Neighbour and Mr. Dieck took the initiative in bringing this work before the English public.—S. STUTTERD, *Banbury, Jan. 11th*, 1882.

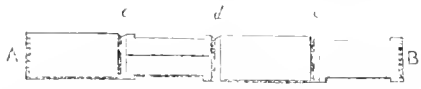
[We are extremely sorry for the omission, and would gladly have given all credit due in respect of the above, but did not happen to know anything about it, except that Dr. Dzierzon, in presenting Mr. Neighbour with a copy of the work, had written that he 'would feel highly honoured by the translation of it into English.'—ED.]

BEES IN A LETTER-BOX.

The German *Journal of Traffic* relates that a swarm of bees took possession of the letter-box in the village of Schwarzbach, in Alsace, last spring, and built their cells and made their honey in their novel hive. They took care to leave ample space for the letters, and, as they interfered with neither postman nor public, they were allowed to remain. The postmistress of Schwarzbach has fourteen pounds of virgin honey which she would like to dispose of.—*Lady's Pictorial.*

FIXING FOUNDATION IN SECTIONS.

The easiest way to put foundation into American sections is to make a saw cut at B, fold up the



section, and slip the foundation in before fastening. —H. PARSON, *The Firs, Guildford, Jan. 2.*

SIZE OF ABBOTTS' WOODBURY FRAME.

Please give the exact dimensions of the Woodbury frame you use, accompanied by a little diagram if you have one at hand. Also be kind enough to say whether it is the same size as the frame recommended by the late Mr. Woodbury. If this information has been previously given, a reference to the number and page will suffice, as I have all the volumes of the *B. B. J.* I am glad to say.—SOMERSET.

[On pages 36 and 37 of Vol. I. of *B.B.J.* the original Woodbury Hive will be found fully described; and in our next impression, seeing that a Standard frame is again proposed, we will give full particulars of it (the Woodbury), that the question may be well understood. Abbotts' Woodbury Standard frame is 14 inches wide and $8\frac{3}{8}$ deep outside measure, the hive being $14\frac{1}{2}$ inches wide and $8\frac{3}{4}$ deep *inside* measure. The original Woodbury frame was $13\frac{5}{8}$ inches wide and $7\frac{15}{16}$, or barely 8 inches deep, the hive being $14\frac{1}{2}$ inches square and 9 inches deep inside. The Abbott Woodbury has thus a larger frame in a smaller hive than the original, the reasons for which will be repeated next month.—ED. *B. B. J.*]

BEE-STINGS, &c.

My object in writing is to try to answer some of the questions proposed by Mr. John Urell in *Journal* for October last. I have no doubt, that the bee constantly touching its adversary with the sting end (some call it the business end), is only its trying to get the sting between the joints of the harness, and that the repetition is rendered necessary by the enemy endeavouring to avoid it. The whirling round may possibly be accounted for by the aforesaid enemy drawing itself away from the attacking bee, while the latter 'sticks to him' and 'follows him up.' The reason why the sting is not left behind when a bee is stung, or in the case of the mouse referred to by Mr. Urell, while it is almost invariably left in the human skin and other large animals, may be accounted for by observing the structure of the sting, which is flattish in form and has a set of nine barbs each side, the barbs differing in size and distance between, getting smaller as they near the point. When the sting is driven into the human skin, which is comparatively thick, this double set of barbs (pointing back from the top) holds so firmly that the working apparatus gives way from the body of the bee sooner than the sting from the skin. The reason why Mr. Urell found no sting in the nose, lips, or ears of the mouse, is to be found, I presume, in the fact that the mouse is so very thin-skinned, and much more so the bee, that there is not sufficient hold for the sting, which can therefore be easily withdrawn;—I will not presume that for the same reason Mr. Urell got stung a number of times, but found no sting remaining. Like yourself, Mr. Editor, I belong to the thick-skinned genus; very rarely have I been stung without the sting remaining. When such is the case, of which I had an experience only this week, I conclude that only part of the sting penetrated, perhaps only so far as two or three barbs; consequently, it is easily and quickly withdrawn. In such cases the sense of pain is very little, and scarcely any swelling, which is not the case (with some exceptions) when the bee has a fair chance, for then the sting, with its eighteen fiercely sharp barbs, holds with terrible firmness, and a good dose of poison is inserted.

By the way, Mr. Editor, I have not yet seen an illustration of a sting which pleased me—I mean the illustration, not the sting. I send you a rough sketch of a sting point, according to my observation. I may say the same also of the inner part of the hind leg, which I choose to call the clothes-brush; a sketch of which I may send another time if it be according to your mind.—J. BROWN (*Baptist Minister*), *Melksham, Wilts.*

A SWARM OF BEES.

B hopeful, B cheerful, B happy, B kind,
B busy of body, B modest of mind,
B earnest, B truthful, B firm, and B fair,
Of all Miss B haviour B sure and B ware.
B think ere you stumble for what may B fall,
B true to yourself, and B faithful to all:
B brave to B ware of the sins that B set,
B sure that no sin will another B get.
B watchful, B ready, B open, B frank,
B manly to all men whate'er B their rank:
B just and B generous, B honest, B wise,
B mindful of time, and B certain it flies;
B prudent, B liberal, of order B fond,
B uy less than you need B fore B uying B yond:
B careful, but yet B the first to B stow;
B temperate, B steadfast, to anger B slow:
B thoughtful, B thankful, whate'er may B tide,
B justful, B joyful, B cleanly B side:
B pleasant, B patient, B fervent to all,
B Best if you can, but B humble withal;
B prompt and B dutiful, still B polite,
B reverent, B quiet, B sure and B right:
B calm, B retiring, B ne'er led astray,
B grateful, B cautious of those who B tray:
B tender, B loving, B good, and B nign,
B loved shalt thou B, and all else shall B thine.

Bee Books.—It is sufficient to read the criticisms upon recent books on bee-culture which have appeared in these pages to understand that many of the objections offered to books on gardening are true of bee-books. The book which shall show the unlearned apiarian how to lead from the straw skeps up to the complicated but doubtless most profitable bee-hive seems still to be wanting; and until this is provided in a cheap form, and brought within reach of the poorest bee-keeper, I fear little will be done to make apiculture universally popular. Writers upon improved systems of bee-keeping seem, as a rule, to proceed upon the assumption that their readers are already to some extent versed in the higher branches of bee-keeping. This is the very class of readers who want least of all to be taught, because the groundwork they already possess, combined with education, enables them to acquire through experience most valuable knowledge. The poor untutored bee-keeper, who has kept bees in straw skeps all his life, and yet with few variations proceeds in his work almost as his father did before him, is not only incapable of appreciating the teachings found in an advanced book, but he has prejudices to overcome, and the only hope of influencing him in a better direction is to make the steps from crude to perfect hives as simple and as attractive as possible. Profit is an element in bee-keeping that exercises a potent influence. If it can be shown that the newer way is the more profitable, very much is done to encourage experiment; but then the showing must be lucid, and it must be truthful. Books that are mere puffs of this or that form of hive must always be viewed with suspicion; books that are mere compilations by book-makers are worthless. In bee-keeping, of all things, it is important that the actual worker should tell his own story, and tell it in such a way as to assure the credulous and not over-intelligent student that the writer is giving facts that are undeniable.—A. D. *in Gardeners' Chronicle, Jan. 7.*

[The above has been strongly commended to our notice by an eminent bee keeper of Lincolnshire, as exactly embodying his sentiments; but we do not quite see why it is necessary to lead any one to a 'complicated' hive, or to try to induce them to believe that such a hive is the most profitable.

That books have been published to puff expensive and complicated hives and systems, and to damnify every attempt to produce a cheap and simple one, no reasonable reader will attempt to deny, nor will they gainsay the fact that many have been compiled to sell which are worse than worthless. It is true that the book which will assume that an intending bee-keeper knows nothing of the subject has yet to appear; but we trust it will not tend to anything beyond the most rigid simplicity.—Ed. *B. B. J.*]

Lecture at Cairnie.—A lecture was delivered in the Coffee House Hall on Friday evening, Dec. 16, when there was a good attendance. Mr. Wm. Tait, Broomend, in the absence of the Rev. Dr. Davidson, occupied the chair. Mr. A. Cockburn, Cairnie, who is a practical bee-master and writer on apiculture, gave an excellent lecture on the practical and profitable management of bees, which was illustrated by diagrams. On the motion of the chairman, a hearty vote of thanks was accorded to the lecturer.

Echoes from the Hives.

The Journal in Suffolk.—'I lend the *Journal* to eight or ten of our villagers, all bee-keepers, who used to be bee *burners*, but who are so no longer. Our people read the *Journal* with pleasure, feeling special interest in any communication from *cottagers*. I begin winter with twelve stocks, all in good condition; ten of them are bar-frames. Wishing you still greater success in all your efforts for the public benefit, and the humane treatment of the little bees for this coming year.'—J. J. G., *Haughley Suffolk, Dec. 30, 1881.*

The Season in Sussex.—'The season so far has been wonderfully mild. I gathered, only the other day, a few pieces of mignonette out-of-doors, whereas other years it is generally cut off in November. Some days have been particularly warm, and there are instances of young birds having been hatched and flown at this early date, and I hear the thrush singing from morn till night. The last day or two has been chilly, with wind S.E., and possibly we may get a spell of winter shortly.'—Samuel Simmins, *Rottendean, Jan. 18, 1882.*

The Season in Devonshire.—'If you think it worth mentioning in "Echoes," to show the mildness of the season, on the 6th January, in this neighbourhood, several peacock butterflies were seen, as well as a queen wasp, and several wild strawberries were found.'—Wm. N. Griffin, *Alphington, Jan. 19, 1882.*

Queens Stinging.—'Queen-bees can sting. I had painful experience of one on the inside of one of my fingers only last summer.'—T. F., *Nether Witton, Jan. 19.*

Ottery St. Mary, Jan. 21, 1882.—'My bees have done wonderfully well the last season, and seem to startle the old-fashioned bee-keepers. We hope to have a proper bee show next August.'—W. R.

Weston, near Leamington, Jan. 24th, 1882.—'To-day, at noon, the sun was shining bright and warm. Bees flying in all directions; so I decided to look at a Carniolan stock to see how they were getting on, took off coverings and quilts, found five seams of bees full, right down to bottom of the frames, took all combs out and examined them, found two good-sized patches of brood in two frames, and a third with lots of eggs: queen and bees looked healthy and bright. I have shaded the direct entrance to all my hives by simply placing a single side of a one-pound section, slanting in front, and sticking a fine wire pin into the top edge to keep it in place, so the bees go in and out at each end. When requiring to see that the entrance is clear, it can be taken away and replaced in a moment; it likewise acts as a guard against the tom-tits to help keep them

away. Hoping we shall all have a good season, including the Scotch, Irish, and Yankees, is the wish of—A WARWICKSHIRE BEE-KEEPER.'

The Season.—Co. Armagh.—'I thought I would write to tell you what wonderful weather we are having for this season of the year. Last week, from Tuesday till Friday, it was as warm as June, and the bees were on all the flowers gathering pollen from daisies, crocuses, and snowdrops, till late in the afternoon. The catkins on the hazel trees are in full flower, so that the bees are gathering quite a quantity of pollen when the sun shines. My hives have all begun to breed except one, and two quite largely.'—T. W. RICHARDSON.

Winter in Ireland.—'In south-west Kerry we have four weeks less winter than England, six weeks less than County Down or the Borders of Scotland, eight weeks less than Aberdeen or the north of Scotland. These all out of central winter and added from 1st March to spring and before 1st December to the autumn. But the summer four months, June, July, August, and September, are not so hot as Central England is in summer.'

Singular Occurrence.—'One of my twenty hives had drones playing on Christmas Day. Last year I had a hive with drones in October, and it did well in summer following.'—JNO. E. ADAMS, *Kingsbridge*.

Diss.—'This last season was very unfortunate for many. I only obtained 60 lbs. from ten hives, seven of them old stocks. My mistake was in not taking the produce from them during the honey harvest, as I could not get them to take to the supers—only two of them.' G. R.

Arbroath.—'I thank you very much for sending me on the much-famed *Journal* as usual. Although I got the last one written with red ink I had no more mind about it until I saw the other come in flying colours also. Without the *Journal* I would just as well be without my bees, and without them I would lose a few pounds a-year. There are few domesticated animals that I have not kept, but the bees take the place of all the rest put together. Three years ago I bought a skep, and now I have nine frame-hives all in good condition, after giving me a fair honey harvest. With these few lines I send a P.O.O. to secure the *Journal* for another twelve months.'—THOMAS HENDERSON.

The Season.—Wareham, Dorset.—'Bees very busy. Primroses, crocuses, &c., in full bloom. More's the pity, I fear.'

Paignton, South Devon.—Prolific Bees.—'I began last spring with three old stocks. I have now fourteen stocks from the three, and two more swarms flew away, I know not where. Is not this a wonderful increase from three hives?'—CLERICUS.

The Season at West Linton (Wintering).—'This has been a very bad season here, although not so bad as 1877-79. I bought a straw hive in the spring, which threw off 10 lbs. of bees in four swarms, and of all these I had no honey, while of a bar-frame I had one swarm of 4 lbs. of bees and twelve sections, 1¼ lbs. each; from another, a swarm of 4 lbs. of bees and twelve sections, 1¼ lbs. each and six half filled; from another that did not swarm twelve sections, 1¼ lbs. each, and one super 6 lbs.; while of my other bar-frames I had from 3 to 6 lbs. of comb-honey. I only mention this to show that bar-frames are better adapted for gathering honey than for swarms. There was no comb-honey off straw hives here this season. "So much for the straw hive." I had three hives last spring where the queens commenced to deposit eggs in the cells about the 8th of March. I examined them every fortnight till 15th of April, and found that the eggs were deposited in different parts of the hive, and none were hatched by the bees. I then put a hot-water bottle below two of them night and morning, continuing till the middle of June, and was surprised to see as much brood in every stage at the next examination. These two bar-frames were the ones I had swarms and sections from. The other gradually dwindled away and died in the autumn of 1881. The queen was three years old and had never before failed to do well. She stopped breeding in August, 1880. Now just a word for the "Lanarkshire Bee-keeper." He either does not want to give much information, or he does not dig deep into the mysteries of the bee-hive. He gives a very good account of dysentery in its many forms, but as to its real cause, or the way it may be prevented, he has very little to say. If his forty years' experience fails to find a preventive, what may be expected of a beginner? He asks if cold causes so much injury, how did twenty Stewarton hives come through the winter of 1860 without incurring disease, while those that were better protected were subjected to dysentery and spring dwindling? Bees derive their heat from two sources, viz., the heat they generate and the heat of the atmosphere (sunshine), and if that protection allowed the heat of the bees to escape it would also hinder the heat of the atmosphere (sunshine) from reaching them, and therefore (though much wrapped up) they would be occasionally colder and more liable to disease than those less protected; but although they (the Stewartons) came through so well, I have little faith in keeping bees in such "deil-me-care" fashion. On page 40, vol. ix. he says, "I disbelieve that cold, if bees are kept dry, is the cause of dysentery or spring dwindling. Nay, I have proven the reverse." And he has done no such thing. He says that carbonic gas is one cause of spring dwindling, and it is caused by the cooling down of the heated air, and if he is correct in his statements, cold must be one of the chief agents that cause spring dwindling.'—FRANCIS BAILLIE.

Bee-Keeping in Poland.—'I may add, for your information, that I am anxious to get my relatives in Russian Poland to work their bees on modern principles. Formerly the Poles were great bee-keepers, and never killed their bees. Bee-keeping has of late years gone out of fashion. In the memory of my wife (a Pole, aged 37) honey at her home cost only three roubles (2*s.* 6*d.*=one rouble) per pud (40 lbs.). Children and servants never got sugar, but always honey. It rose rapidly to ten roubles, and sugar was then more freely used. It now costs eighteen roubles, about the English price. There is always a great sale in Russia for honey, as the conservative sect of "Old Believers" will not touch sugar.'—H. H. C., *Liphrook, Hants.*

County Carlow, Ireland.—Flour Cake.—'I have sad news of one of my hives—the one which had no honey (all being late swarms), about which I wrote to you. I have been trying to keep them alive on flour-cake administered over the frames, and till a few days ago all appeared well. To-day, however, an examination revealed the fact that they were all dead, and the bees and foundation and frames mouldy. The flour-cake seems to have melted and run into water, which formed in little pools on floorboard. I at once examined the other stock (which is close by in an exactly similar hive) and was rejoiced to find them dry and in apparently good condition. As they had some honey I had only given them a little cake, which has all disappeared. I am much disheartened at the loss of so many bees. There were three or four stocks united in the lost hive—most of them condemned bees that I saved—and hoped to have brought through the winter. Alas! I began my bee-keeping too late. I knew nothing about bees till the last season was over, and the first two stocks I got, which cost me 2*l.*, turned out to be third swarms, with no honey, and I had to unite them to give them a chance. Both stocks, however, when so united with two or three more were strong and healthy, and if I had only had sealed honey for them might have done well. Oh! if I had only known you in time—your advice would have saved me much loss. How I wish

I was within reach of you, that we might have a talk! Half-an-hour's conversation would clear away mountains of difficulty. I have to thank you much for your very kind help hitherto.'

This is only a specimen from among many in a similar strain. Fogey bee-keepers and writers who have stocks to sell advise intending beginners to purchase 'stocks' and lead them to expect swarms from them; but it is a custom with those who have good stocks to keep them and sell only their rubbish. We invariably advise beginners to purchase swarms; for by the aid of comb foundation they can turn them into stocks in three weeks, and be sure of their healthiness.—Ed.

Queries and Replies.

Query No. 442.—*Bees as a Public Nuisance.*—I have built a bee-house in my garden, against a wall. There is a public road on the other side of the wall. Last summer the bees were made irritable by a little plundering, when they stung two of my neighbours who were passing up the road. Can such persons compel me to remove my bee-house away from the road? What is the law in such a matter?—Clericus, *Devon.*

Reply to Query No. 442. If it can be proved that bees from the house in question are repeatedly stinging passers-by on the public road, there is little doubt but that they may fairly be considered 'a nuisance injurious to health,' and in such case the justices have power to order their removal. The law is peculiar in respect of animals liable to injure the person: a dog may worry a man to within an inch of his life, but, if he has not injured any one before, there is no liability on the part of the owner. A dog has his first mouthful free, and probably bees may not get their owner into trouble till their dangerous character is well established, and then we would rather not be defendants in an action for damages for injury to the person, for 'establishing a precedent' is an expensive luxury.—Ed.

Query No. 443.—*Purity of Race in Bees.*—What are the marks of pure Ligurian bees? I have some so-called Ligurians which have the three yellow bands clear and distinct on a dark body, but without the broad tawny orange band immediately behind the wings, which distinguishes some of my other so-called Ligurians. Are the dark bees pure or cross-bred? I send you a specimen bee of each kind. They are both good workers, and have been carrying *loads of pollen all this last week.*—Clericus, *Devon.*

Reply to Query No. 443.—The markings of pure Ligurians are not always the same, but we are always satisfied if the bees are all marked alike. Generally, there is a narrow or half band of yellow colour immediately behind the thorax, and then two broad or full bands, the end of the abdomen being dark, but there is no rule as to shade of colour either in dark or yellow. Hybrids, the progeny of a yellow queen mated with a black drone, and *vice versâ*, will partake of the markings of both varieties, and it is certain they will not all be marked alike. Uniformity in this respect has been thought a sufficient test of purity, but now the races and varieties have been so intermingled through thoughtless introductions by breeders, whose true interest it was to keep them pure, similarity of colour will be no test, and bees may be bought for pure Ligurians without any of their good qualities. It was claimed by Messrs. Jones and Benton that the Cyprian and Syrian bees were distinct in character, and they immediately set to work to breed both races in the Cyprians' apiary, and the Italian breeders have been doing worse by bringing Cyprians and Syrians among their Ligurian apiarians, so that presently it will be difficult to find or keep a pure race at all.—Ed.

Query No. 444.—*Hiving Swarms.*—In putting a new swarm into a bar-hive you recommend that the bees should be shaken in front of the hive, but why would it not do to shake them on to the top of the bars? which latter way would appear more expeditious.—F. C.

Reply to Query No. 444.—If when the bees are placed on the bars of a frame-hive they would obligingly make haste and get under them, instead of boiling over and lying in heaps upon them and along the hive sides, it would be more expeditious, but ordinarily it will be found better to arrange the frames and quilt, and let the bees run under them, as in the latter case they can be left to their own devices. When a swarm is first hived great heat is generated, and if the hive be put upon its stand as soon as the bees are in it, and only the ordinary entrance left open, they will often desert their hives, or be suffocated in their frantic attempts to get out of it. In hives with fixed legs it is advisable to lift out one or two frames and pour the bees into the body of the hive, but in that case we recommend ample ventilation by the partial removal of the floor-board for a time. In the Combination or Irish hive it is only necessary to remove the dummy at the back of the frames and pour the swarm in the unoccupied part of the box, and by-and-by, when the bees have gone amongst the frames of foundation, the dummy may be gently replaced.—Ed.

Query No. 445.—*Uniting.*—Is it practicable to drive bees from a double-walled moveable-comb hive, with cork between the walls? Last autumn I drove some bees out of a single-walled hive, and found it much more difficult than driving from a skep, particularly from a hive where the frames were not all filled in. My reason for driving the bees was because I took some condemned bees from skeps and united them with my own, as directed in leaflets; but it afterwards seemed to me that it would have done as well if I had merely smoked the bees in the frame-hive well, and then shaken the condemned bees on the top of the frames. Would you consider this sufficient?—F. C.

Reply to Query No. 445.—It was because the latter was not *always* sufficient that the fuller directions for uniting were given. It cannot be necessary to drive bees from a moveable-comb hive when the combs can be simply taken from them and the bees alone left behind to be dealt with at will. There are many ways of uniting bees (and queens too) that are safe now and then, and those who please may try them, but it is our province and pleasure to tell people how not to fail: and if they will only believe in our teaching, and act upon it, they will not go far wrong.—Ed.

Query No. 446.—*Bees among Broken Combs.*—I have one late swarm in a box (without frames), which had only managed to half fill the box with comb; I united some more bees with them in the autumn, but unfortunately must have jarred them in driving rather too violently, because after I had placed the hive again on the stand, upon looking through the window at the back, I found a good part of the comb had fallen down on the floor-board. I have left them in this muddle; if they live till the spring what do you advise? Would it be best to drive them into a bar-hive with comb-foundation early in the spring, and feed them?—F. C.

Reply to Query No. 446.—A late swarm in a box-hive, without foundation, yet with all its combs new and tender subjected to driving! How often have we advised against these things? It would be bad policy to drive the bees out of their combs in spring and sacrifice the brood they (if alive) will have raised. We would split or wrench off the side of the box, cut out the combs, tie them into frames as in the process called transferring, put the frames together in a frame-hive and close up with a dummy-board, giving frames of foundation one by one as the bees increase and are able to occupy them.—Ed.

QUERY No. 447.—*Sand-Martins.*—A friend of mine is anxious to commence bee-keeping, but where he would have to put his hives there is a great number of sand-martins. Could you tell me through the medium of your *Journal* whether they would be likely to interfere with the bees; and if so, whether there is any means of protecting them?—F. J. COX, *Sidcup, Kent.*

REPLY TO QUERY No. 447.—We know little of sand-martins, but (excepting to drones) believe them to be harmless. There is often an outcry against martins, but the following from the *Bee-Keepers' Guide* (American), by Wm. Camm, tends to show their utility rather than otherwise:—'I am taking up too much of your space this time, but must add that I shall have to move my martin box. I found martins very useful in driving away hawks just when young chickens are most in danger from them, and so put up a martin box; but I set it among my hives, only eight or ten feet above them, and last summer the bees often drove the birds away when trying to light on their box; though I noticed that the bees never entered the box, and if a martin could run the gauntlet, and once get inside its house it was safe enough. Though I have noticed for hours' I never saw a house-martin attempt to catch a bee. Bee-martins, too, build in trees in front of my hives, but several *post-mortem* examinations have disclosed nothing but the remains of apple-tree borers, ground-bugs, and what might have been parts of a drone.'—*Murrayville, Ill., Dec.* 12, 1881.

QUERY No. 448.—*Preserving Young Queens.*—In your articles last spring on the management of an apiary you gave directions for raising queens in nucleus hives to be built up into stocks. Will you at your earliest convenience kindly give what you consider would be the best plan to adopt in order to hatch out and preserve the queens from any cells that may remain after stocking all the nucleus hives? Such queens, I think, would be valuable if they could be fertilised and kept in boxes similar to those in which queens are imported, to replace any that may die or be lost.—G. M. F., *Exeter.*

REPLY TO QUERY No. 448.—Attempts to utilise spare queen-cells in small boxes are almost certain to fail. A young gadding queen out for her holiday does not return, or will not stay at home in such tiny places after having heard the joyful hum from strong stocks, that is so congenial to her nature. It is furthermore doubtful if it will pay to form nuclei for all the queen-cells that may be reared, though it may be well to keep a few spare queens on hand. Queen fertilization in small boxes being uncertain, it only remains to secure their fertility in larger ones, when, as after marriage they will not leave their hive so long as they are properly attended, they may with comparative safety be transferred to smaller boxes.—ED.

QUERY No. 449.—*The Giotto Principle.*—Having read with interest in the *British Bee Journal* your observations with reference to the Giotto hive, and your suggested improvements, I have been contemplating altering my ordinary double-walled hives to correspond with the system, but would like to know your opinion on the plan I propose to adopt before carrying it into execution. The great advantage of the Giotto hive is undoubtedly the close-ended frames, and I propose to widen the ends of my frames so as to make them touch one another at their sides and still leave, as at present, a quarter of an inch between the frames and the sides of the hives. There would then be a hollow space, and perhaps you will say that that is not quite the Giotto system, as the combs will not touch the walls. The difficulty which presents itself to me is this: Shall I be readily able to disengage one frame from another when propolised together, as of course they will be, by thrusting a thin knife between them from above? I think I shall, but several persons to whom I have mentioned the idea seem to think that I shall have a difficulty. I have made some draught-preventers after the pattern in your *Journal*, and I put one as a trial on one of my hives. Upon examining the openings of my hives the other day I was surprised to find that there were about thirty dead bees in that of the hive on which the draft-preventer was, whereas I only found one dead bee in all my other five hives. Can you account for this? I am rather afraid to put draught-preventers on the other hives in consequence.—A. W. A., *Tunbridge Wells, Jan.* 11, 1882.

REPLY TO QUERY No. 449.—When the close-ended frames are suspended in a hive they will touch each other and form inner side-walls, and combs built within them will be attached to them, but will be moveable with the frames, which is exactly the Giotto principle. Such frames if well made and pressed close together cannot well be stuck together with propolis, and if their edges be first greased such sticking will be almost impossible. The great Dzierzon is so averse to the use of open-ended frames that he prefers simple bars which allow the bees to build against the solid hive walls, so that every comb has to be detached with a knife before it can be removed. He thinks nothing too much trouble in 'rational bee-keeping,' provided it lessens interference with the natural habits of the bees. We have not used draught-preventers, but think it likely that the darkness caused by them may have prevented the bees carrying out their dead, as is their natural habit.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. T.—*Wood Foundation.*—We *do* intend prosecuting the production of this desirable material, and hope to be in full time for its use; but brass-cutting is not easy or cheap work, and 'Rome was not built in a day.'

TURNHAM GREEN.—*Bees with four hours' sunshine.*—The bees being in a sheltered position with four hours' sunshine, there must have been causes outside 'the situation' for their condition in autumn. Nothing is said of the strength of the swarm (which came from Devonshire), the size of the hive, or whether the frames had been filled with comb-foundation; but it is evident from 'the outer comb being nearly empty and quite deficient of honey,' that the super 'put on six weeks after hiving' ought not to have been put on at all, unless the bee-nest had at the same time been contracted and enclosed by a division-board or dummy. The probability is that the hive was too large for the swarm, or the swarm too small for the hive; and that though the bees were probably doing well, putting on the super gave so much room for the escape of heat from the brood-nest, that it checked the progress of the breeding and comb-building on the ground-floor. We cannot recommend the removal of the stock from its sheltered position to the flat top of a two-storied house, where it will be continually exposed.

REMOVING BEES.—*Killylea.*—Bees cannot be at once moved so short a distance as eighty yards without risk; but the risk will be minimised by removing them in cold weather, and planting a branch of a tree in front of their alighting-board to cause them to notice the change when taking a flight. Bees do not fly 'abroad' at this time of year, and by judicious management the old location may be so disguised that when they extend their flight they may not recognise it.

W. R.—*Stocking frame-hives from skeps.*—If the skep, when full of bees, be placed upon a hive whose frames are filled with foundation, and no means of exit from the skep be permitted except through the frame-hive, the bees will undoubtedly take possession of the latter and fill it if the weather will permit them to do so. As you do not wish for comb-honey, and the contents of the skep in autumn will answer your purpose, there can be nothing to say against the plan proposed; but we cannot recommend it for general adoption. The other matters contained in the letter have been already dealt with.

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To meet the wants of Subscribers who require a cheap mode of advertising their wants, we have opened an Advertising Column, for non-trading Subscribers only, wherein they may make their wants or wishes known at the rate of One Penny for every six words, or part of six words, but no advertisement must contain more than thirty-six words.

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NOTICE.

THE GREAT HAMPSHIRE BEE FARM.

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An experienced Expert will be sent when required to lay out work or arrange Apiaries.

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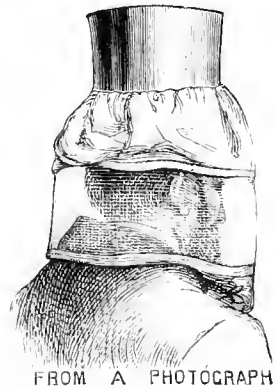

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Price 1s. 6d. per bottle, or Post-free for 1s. 8d.

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THE NUMBER FOR FEBRUARY CONTAINS:

Orchid-Culture: No. II., Dendrobiums—Notes—Winter Flowers: The Epacris—Planted-out *versus* Fruiting Vines in Pots—Hints for Amateurs—Florist Flowers—Chrysanthemums, large Blooms—Notes on Orchids, &c.—Plant-houses—Fruit-Culture: The Strawberry—Schizostyllis Coccinea—Abutilons—Low Temperatures for Grapes—Raising Plants from Seeds—Rapid Growth of Peach and Nectarine Trees—The Bread-fruit Tree—Insecticides—Chrysanthemum Dr. Sharpe—Notice of Book—Calendar: Forcing Department, Kitchen Garden.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 107. Vol. IX.] MARCH, 1882. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

The weather, almost always the foremost topic in the minds of bee-keepers, has during the past month been exceedingly mild and pleasant, and bees have had a busy time amongst the crocuses and other early flowers, and breeding has become the order of the day in the majority of hives. It is very natural for bee-keepers, seeing their bees so active, to wish to help them, and notwithstanding the cautions given in previous *Journals* of late, the temptation has been irresistible in very many instances, and bees have been stimulated far beyond what a wise policy would dictate; for it is by no means certain that King Frost will not pay us a visit, and should he come, the forward hives, like the forward buds, will suffer greatly. Up to the present, seeing by their activity that our bees are alive, we have interfered with them as little as possible; many are full of bees almost to 'bursting, but except in one instance we have not opened a hive, knowing that every disturbance is stimulative, and that under the conditions which have been present, they will have been breeding sufficiently for the time of year.

Small Beginnings.—When let alone, bees, being well supplied, will do what their instinct prompts them to, and naturally, will not do much harm: they obtain a slight income daily, which indicates to them that it is time to think of increasing their numbers; greater heat is generated through their activity, and the queen deposits a few eggs on each side of a comb. If the income continues from day to day, the small patch of eggs is increased daily, and in about three days the first-laid eggs begin to hatch, and then the consumption of food begins in earnest. While breeding was in abeyance, only as much food was consumed as was necessary to the production of heat for sustaining life, and for repairing wasting tissue; but as soon as brood appears in a hive it has to be fed for the production of new tissue, and the consumption of food increases enormously, proportionate, of course, to the quantity of hatching brood. After a long suspension of breeding, the bees in the hive having become in a sense aged, do not readily take to the duty of nurses, and for the first few weeks the queen does not lay very rapidly, but when the young bees (the nurses proper) begin to appear, the breeding is greatly enhanced, the queen being doubly stimulated, and, the income continuing increasingly, the hive will soon be filled with a youthful population.

In a backward season, there would be no chance of natural income for bees until March, when the crocuses would yield their delicious product, and then it would be sufficiently early, and, usually, good policy to help them by affording them a small but continuous supply of syrup, for, considering how small are the beginnings of breeding, and that a month will elapse before the young bees begin to hatch in force, and that during all that time the death-rate will be greater, owing to the increased activity of the bees, it will be well to encourage them by eking out Nature's supply of food, and rendering its ingathering less precarious. In a season like the present, when bees have been active all through January and February, and have obtained a sufficiency of income to induce breeding during all that time, young bees will have hatched in large numbers, and stimulation by feeding would cause the hives to be filled with brood and bees in quick time—long, indeed, before they would be able to gather food from natural sources, and having in breeding consumed their stores within the hive, they would require constant additional feeding to enable them to exist till the blossoms opened.

Breeding too Early.—We have in the foregoing indicated the effect of too early stimulation in the spring, and would point to the necessity for careful judgment thereupon, for if bees are unduly brought into existence, it will be necessary to feed them to preserve life, or they will soon begin robbing, or they will die. Many bee-keepers suffer considerable

losses in this way, and, not seeing the point we are endeavouring to elucidate, attribute them to spring dwindling consequent on stimulation, whereas it is simply the consequence of their own ill-judged action in stimulating unduly.

Needy Bees.—Stimulative feeding consists in the administration of food *gently and continuously*, teaching the bees to believe in a constant source of income, and is entirely different in its effect to what for the sake of distinction we call 'spasmodic feeding,' *i.e.*, giving the bees quantities of food that they can take quickly, at various intervals. The former induces a steadily continued activity, the latter a rush of excitement—the former once begun must be continued or great evil may result; the latter, when the temporary excitement is over, cannot in a mild season like the present do much harm, and therefore, where bees are needy and must have food, it will be well to give them a few pounds quickly at night. Many stocks that have been gathering pollen largely will have become needy through having consumed their honey in breeding, being naturally led to depend on the continuance and increase of the outdoor supply, and if not aided as suggested, may fall victims to the false hope engendered by the extraordinary, we had almost said unnatural, condition of the weather and their present surroundings.

Cessation of Income.—The first effect of cessation of income is the stoppage of egg-laying, the bees at once resolving that no further expenditure of resources shall take place, they cease the stimulation of the queen. If relief be not quickly afforded, they prevent the increase of population, and satisfy their own need by eating the unhatched eggs, and, failing help, the young larvæ are consumed, then the more advanced grubs, and the bee-pap with which they are surrounded, and presently the sealed brood is torn out, the soft parts eaten, and the remains of the immature bees thrown out of the hive, where they often awaken curiosity, but do not convey to the uninitiated the straitened condition of the inmates.

White Bees on the alighting-board are the bees' signal of distress—their white flag, which should at once be responded to. It may be hung out at almost any time during the breeding season, and its presence shows not only that serious mischief exists, but that it has been going on for some time, and that the hive is in danger from impending starvation. A check in the incoming of honey during swarming time will cause the bees to relinquish the idea of swarming, and white drones will be thrown out, and in all these cases it is peculiar that the bees leave them on the door-step of the hive, as if to mark the poverty of the inhabitants within. As a rule, bees carry away their dead and throw them to the winds, but when in trouble as indicated, they adopt the very best course to attract the attention of their owners. When white bees appear, food should instantly be given, but it is always better to prevent their appearance by attending to the bees' necessities in advance.

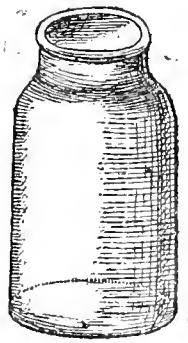
Judging Hives by Weight.—This is a most fallible proceeding, and often in spring and summer very misleading. With a fair incoming of honey, bees will breed in spring, and use up the honey as fast as it comes in, and the hive being full of brood will be very heavy, yet it may not possess sufficient store to last forty-eight hours. It is important to bear this in mind, as a day or two of bad weather may reduce flourishing stocks to a state of pauperism.

Stimulative Feeding.—The beneficial practice is usually commenced about the end of February or the beginning of March; but, as before suggested, the continued mildness of the weather, and the comparative abundance of natural bee food, render it unnecessary in many places, at the present time. Young bees are already coming forth in considerable numbers, and good stocks will be in swarming condition in good time, unless bad weather sets in. There are, doubtless, places and apiaries where the advantages mentioned are absent, and where stimulative feeding will be a necessity; and in such cases it must be remembered that stimulative feeding once begun must be continued until the flowers and blossoms give forth their abundance. The principle of stimulation consists in supplying a constant income to the bees at a time when but for it they would be getting nothing. The sudden introduction of sweets in bulk to a hive causes at once great activity and excitement, and while they are storing it in their cells they act for a time as if it were summer, flying abroad by day and often suffering severe loss of numbers through cold or wet; but when supplied so that they can get only very little, but can get it constantly, they soon show signs of activity, but without any violent demonstration. With a feeder on a hive so arranged that the bees can help themselves from one pin-hole only, at which about three bees can work, they take in as much as three bees per minute could bring in from the fields; and doing this constantly it may be expected, and in fact is so, that they are soon induced to make 'small beginnings;' and as the season advances and their breeding becomes extended, a second hole in the feeder is made available for them, and their intake being doubled and presently further multiplied, their activity is greatly stimulated, and they go on increasing as before suggested, and thus a large number of young bees are produced in hives that otherwise would remain comparatively inactive.

Artificial Pollen.—This in a general way consists of the flour obtained by grinding peas of the kind used in making pea-soup, that being the specified purpose for which the flour is prepared; and though other kinds of meal may be given to bees, the pea-flour is most highly appreciated by them, and is the least wasteful. When stimulating bees with syrup, and they are seeking pollen in the flowers of the crocuses, if a little of the pea-flour be put into each flower, the bees will quickly show their liking for it, and having tasted it, they will visit any vessel in which it may be placed, and will carry it home in large quantities. Although an excellent substitute for pollen, and bees take it greedily in spring when the latter is scarce, they will not look at it when a good supply of natural pollen can be obtained; nor will they care much for it unless honey or syrup is coming into the hive. Many bee-keepers forget that honey and pollen are necessary for the formation of bee-pap; they offer the pollen substitute, but forget to feed with syrup, and the bees not being aroused by the one to the necessity for the other, do not take the pollen as freely as do those that are under the stimulative influence of the feeding-bottle.

HONEY JARS.

At length we hope and believe we have succeeded in procuring honey jars that will meet the approval of our friends both as regards price and appearance. It is of German make, and of the shape indicated in the sketch:



a plain, unvarnished fact, easy to fill and empty, and easy to pack. The glass is strong and quite white; they hold one and two pounds of honey, and will be true to their respective sizes. The cost of the one-pound sizes will only be one shilling more per gross than those we were able to get from Birmingham in past times, which were of green glass, very thin, and of various sizes; but we regret to say the larger jars are more expensive than formerly was the case. The prices are, per gross, for the one-pound jars, packed at Southall, 18*s.*, packing included, and for the two-pound jars, 23*s.* per gross. Half or quarter grosses will cost an extra shilling for repacking. Single dozens will be two and three shillings. Every care will be taken in packing, but we cannot be responsible for breakages in transit. —Ed. *B. B. J.*

THE BLIGH ECONOMIC COMPETITION.

As will be seen on another page the rules of the Cottager Apiary Competition, instituted by the Hon. and Rev. H. Bligh, have been approved of by the Committee of the British Bee-keepers' Association, and will have due effect. The object in view is to get expert bee-keepers to establish such apiaries as cottagers could obtain with ordinary thrift, and to prove to the world at large that bee-keeping when rightly understood and practised is a profitable industry, and worthy more respectful attention than is usually accorded to it. The entrance-fee is only 5*s.*, the regulations are not very exacting, but the hope and belief exist that the Committees of Associations will exercise a keen judgment in the selection or approval of candidates for competition that no one of doubtful honour or ability may take part in it.

It will be a most interesting experiment, and permission to enter as competitor will be really a certificate of merit, and we trust every able expert will enlist in the good cause and elicit from the doubting multitude a general approval of bee-culture as a profitable business.

BEE-CULTURE AT THE ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON.

It has been announced that a Dairy, Poultry, and Minor Food Products' Exhibition is to be held at the above Gardens, and is to extend over a period 'from about March 21st up to about May 6th next,' Mr. W. B. Tegetmeier being advertised to deliver a course of instruction on 'Poultry Management,' which will extend from March 14th up to April 3rd, and Mr. Cheshire a similar course on 'Bee Management,' from April 11th to May 1st, after which the students will undergo examination for certificates and medals. We are always glad to help forward every movement that has for its object the improvement of bee-culture, more particularly when that is its sole purpose and the means adopted are in unison with the efforts that are being made by existing associations; but in the present instance there is room for doubting if it be so. The British Bee-keepers' Association is the recognised head of the bee-keeping interest in this country, and the objects of an Exhibition Committee that utterly ignores the existence of the central authority, yet abruptly adopts its lines and assumes for itself the lead, are, to say the least, questionable. The Exhibition Committee, by whom constituted, the prospectus sayeth not, assures the public that 'The Association for the Promotion of Food Production by Women' gives a cordial and active support to the Exhi-

bition, and to the courses of instruction intended to be given; but the British Bee-keepers' Association is not only not mentioned, but has not been applied to on the subject, though the Exhibition Committee have with questionable taste taken upon themselves the work the British Association is engaged upon. Mr. Cheshire well knows that the Association (from which he has lately seceded as a member and committeeman) has been striving to obtain the sanction of Government to the appointment of a Professorship of Apiculture, that classes of instruction might be held, and certificates, of value as coming from an authenticated source, might be awarded to deserving students; and he also well knows that the matter is only in temporary abeyance: yet in the face of that knowledge he has accepted a professor's duties without the authority that gives certificates and medals practical value. From our point of view the whole thing is a mistake, and savours more of Barnum than bee-culture. The fees for the course of lectures are one guinea for each person, and for space for exhibits one guinea per foot run, eight feet wide.

THE IMPROVED GIOTTO FRAME-HIVE.

In our last we showed how a hive on the principle named could be made, and we now propose, in fulfilment of our promise, to show how it should be stocked with bees. On page 197 there is a diagram showing how the frame's top bars should be sawn down for the introduction of foundation; and if our readers have them so prepared, they have only to slip in sheets of that precious article of a size to almost touch the frame-ends, and reach to within about ¾ inch of the bottom rail of frames, and then, if the top bars be fixed into the notches of the wide frame-ends, they will be ready for use, excepting, perhaps, that it may be well to drive one or two pins through the top bar, here and there, to cause it to more firmly clutch the foundation.

Now, when a swarm is ready for hiving, the first thing to do is to determine, as near as may be, how many of the frames of foundation the bees will be able to cover with even a little crowding on both sides, and then to put that number of frames in the box, in the front part next the entrance. Take then the back-board, which will be all the better for having clamps or ledges nailed across its back face, and fix it with struts pressing from the back of the hive against it, so that it fits quite closely against the frames and squeezes them together tightly, but with this little provision, that it shall be one inch clear of the floor of the hive. This may be very easily done by putting two blocks of wood or two stones under it before strutting it, and then, if the quilt be laid on so as to cover the bee-nest only, the hive will be ready for the swarm's reception. How comfortable bee-keepers would feel if, when swarms are likely to come off, their hives were always equally ready beforehand, so that there would, as in this case, be nothing to do but to catch the bees in an old skep or tin pail—the latter preferably because bees cannot adhere to it—and run with them to the hive and pour them into the space at the back of it, as near the back-board as possible. If the queen be with the swarm, a necessity common in all cases, the bee-keeper may be quite easy on the question of safety; the queen and bees will run under the back-board, and along and under the sides of the bee-nest formed by the frames, and will take possession in double-quick time, and the hiving may be considered accomplished. There will then be nothing to do but to cover the hive loosely, to keep off sunshine or rain until evening, when the supports of the back-board should be taken away, that it may be put down to its proper position, and put two strips of wood about an inch square one on each side of the bee-nest along the floor-board, when the hive may be securely covered up, as is ordinarily done, with a sloping roof, or any other means by which the rain can be kept out of the box.

In forty-eight hours at the furthest, the hive may be uncovered, the back-board and two of the frames pushed back one and a half inches, and another frame of foundation slid down between them—not a bee can be crushed, because in pushing the frames down all bees between the frame-ends will be moved out of the way, and the hive may again be closed and the operation repeated every day or two, so long as the bees are able to cover the combs. Bees that at first are only able to cover four frames of foundation will, in a few days, be able to cover ten frames of comb; at first they would be in spaces nearly one and a half inches wide, but when the combs are built out they have only half-inch interstices to pack into and no waste spaces around the frame-ends to occupy to keep the heat from escaping. The Rev. G. Raynor, on another page, appears to believe that open-ended frames are only detrimental in winter, when many frames are left in a hive, but we have great faith in the necessity for preserving heat amongst the bees when combs are being built, and when, though ventilation is necessary, it is best supplied at the bottom of the hive. No hive can be better adapted for the reception of sections in the rear of the brood-nest, for a sheet of perforated zinc will cut off the queen's domain at any point, and if sections be put into the frames, separators of thin board or tin, with holes or

entrance-ways made in suitable parts of them, can be slipped between the frames and may rest on the floor-board without detriment, but with the enormous advantage that they absolutely prevent the bees having access to any part of the sections but the inside of them. Though the sections will be wider than the frames there can be no disarrangement of them, because they (the sections) will butt evenly on both sides of the separators, and will all be jammed together tightly by the struts in rear of the back-board. In the trial of hives, &c., that will take place under the crucial competition instituted by the Hon. and Rev. H. Bligh during this and next summer, we shall, all being well, give the principle a fair public trial.

BRITISH BEE-KEEPERS' ASSOCIATION.

The first Meeting of the new Committee elected for the current year was held at the Langham Hotel, Portland Place, on Wednesday, February 15. There were present—Mr. T. W. Cowan in the chair, Hon. and Rev. H. Bligh, Rev. F. T. Scott, Rev. G. Raynor, Mr. J. M. Hooker, and Mr. D. Stewart. The minutes of the last meeting were read, confirmed, and signed; the balance-sheet for the month ending January 31st was also read, showing a balance in hand of 66*l.* 1*s.* A letter was read from Mr. W. N. Griffin, the Honorary Secretary of the Devonshire Association, requesting that castings of the blocks of illustrations as inserted in *Modern Bee-keeping* might be allowed to be taken for the use of the Devonshire Association. Resolved, 'That such castings be taken, and the blocks lent to County Affiliated Associations when required.' The amended scheme for the promotion of cottage apiaries, as proposed by the Hon. and Rev. H. Bligh, was submitted, and, after some discussion and a few verbal amendments being made, it was moved by Mr. J. M. Hooker, and seconded by the Hon. and Rev. H. Bligh, 'That the scheme as revised be adopted;' carried unanimously.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting was held in the Board-room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, on Wednesday, Feb. 15. The chair was taken by the President of the Association, the Baroness Burdett-Coutts. There was a large attendance of members, including several representatives of County Associations; the audience included Sir Francis Burdett, Bart., Hon. and Rev. H. Bligh, Revs. E. Bartrum, G. Raynor, F. T. Scott, F. G. Jenyns, W. E. Burkitt, J. H. Dixon, A. T. Crisford, and Messrs. J. M. Hooker, D. Stewart, S. H. Morell, S. J. Baldwin, G. D. Clapham, J. D. Desborough, J. E. Littleboy, D. Stewart, J. Willard, J. Garratt, G. Henderson, H. C. Finch, F. Lyon, A. Neighbour, S. Barge, &c.: there were also several ladies present, every available seat being occupied.

In the unavoidable absence of the Rev. H. R. Peel, the Honorary Secretary, through indisposition, the minutes of the last general meeting and the Committee's Report for the past year were read by Mr. T. W. Cowan, the Chairman of the Committee. The following is

The Annual Report.

In presenting to the members of the British Bee-keepers' Association their report for the year 1881, the Committee are glad to announce that the number of members continues steadily to increase. The Association numbered on December 31st, 1881, 284 ordinary members, and 13 life members; an increase of 38 from January 1st to December 31st, 1881. Thirty-four new members have since been enrolled, making the present total 331.

The Committee also notice with great satisfaction the increase of County Bee-keepers' Associations in affiliation with the Central Society. During the past year such Associations have been established in Brecknockshire, Cambridgeshire, Cornwall, Leicestershire, Norfolk, Sussex, and Wiltshire; and efforts are being made to establish County Associations in Derbyshire, Oxfordshire, and Somersetshire. The West Kent Association has united with one commenced in the eastern division of that county, and a County Association for the whole of Kent has thereby been formed on a strong and solid basis. It is much to be regretted that Hampshire should now be the only southern county which is without an Association, or the prospect of one. There are now altogether eighteen English and Welsh County Associations, with an aggregate of 2000 members, all of which it is expected will be affiliated with the Central Association. The Committee are also glad to report that the tour of the Bee Tent in Ireland, during the summer of 1880, is producing good results. In addition to the Irish Bee-keepers' Association established in the spring of 1881, there are now two County Associations: one in Armagh, of which Mr. G. Greer and the Rev. H. W. Lett are Secretaries; and another in Tyrone, under the management of Mr. Thos. S. Porter, of Cloghen Park. The Secretary for the Central Irish Association is Mr. Robert Sproule, Richmond Road, Fairview, Dublin. The Committee think it not beyond their province to call attention to the number of Scottish Bee-keepers' Associations which are now in existence. The Caledonian Apiarian Society, which traces its origin to the first show held by the British Bee-keepers' Association at the Crystal Palace, was formed in December, 1874. It has held Exhibitions at the Shows of the Highland Agricultural Society, at Edinburgh, Dumfries, Perth, Kelso, Stirling, and Glasgow, and is prospering under the guidance of Mr. Robert Bennett, 8 Holland Place, Glasgow. In January, 1876, a kindred Society was formed at Dundee, with Mr. Raitt as Secretary. In 1878 Perth followed suit; and Societies have subsequently been formed at Stirling, Cowal, and Falkirk. It will be seen that the East of Scotland Society has affiliated itself to the British Bee-keepers' Association.

County Shows of Bees, Hives, Honey, &c., have been held by the several Affiliated County Associations, at which prizes offered by the British Bee-keepers' Association for the production of honey have been awarded as follows:—Berks and Bucks Association: Silver medal, bronze medal, and certificate, Sir Gilbert A. Clayton East, Bart., Hall Place, Maidenhead. Dorsetshire: Silver medal, Mr. J. Antell, Puddletown: bronze medal, Rev. G. H. Wynne, Whitchurch: certificate, Mr. R. Slade, Puddletown. Devonshire: Silver medal, Mr. W. N. Griffin, Alphington; bronze medal, Rev. J. A. Kempe, Newton St. Ayres: certificate, Miss Symons, Hatt. Hertfordshire: Silver medal, Mr. J. S. Brooks, Barnet; bronze medal, Miss Gayton, Much Hadham; certificate not awarded. Kent: Silver medal, Mr. G. Allen, Orpington; bronze medal and certificate not awarded. Lincolnshire: Silver medal, Mr. A. P. Russell, Lincoln; bronze medal, Rev. W. V. Turner, Bardney; certificate not awarded. Shropshire: Silver medal, J. Fryer Bennett, Esq., Shifnal; bronze medal, Mr. Copeland, Shifnal; certificate, Mr. H. Powell, Hampton Lode. Suffolk: Silver medal awarded to an exhibitor not residing within the recognised boundaries of the county; bronze medal, Mrs. Goodhart, Wetherdon Rectory; certificate not awarded. Surrey: Silver medal, Capt. C. D. Campbell, Box Grove, Guildford; bronze medal awarded to an exhibitor not residing within the recognised borders of the county (see 'Privileges of Affiliation,' No. 3); certi-

ficate, Mr. Marriott, Woodside Green, Norwood. Warwickshire: Silver medal, Mr. T. B. Thompson, Birmingham; bronze medal, Mr. J. Walton, Weston; certificate, Mr. E. H. James, Sutton Coldfield.

During the past year the Association's Bee Tents have been erected at the following Agricultural and Horticultural Shows, viz. At Thame, in Oxfordshire: Hungerford, in Wiltshire; Wimbledon, in Surrey; Aylesbury, in Buckinghamshire; Sandy, in Bedfordshire; Slindon, Ringmer, Horsham, and Hawkhurst, in Sussex; Wantage, in Berkshire; Long Buckby, in Northamptonshire; and Southampton, in Hampshire. The Bee Tent was also erected at the Royal Agricultural Show held at Derby, where many thousands of persons witnessed the various exhibitions which daily took place during the continuance of the show.

Three meetings have been held during the year, at which papers have been read bearing upon the improved methods of bee-keeping, viz.—(1) On Wednesday, February 16, by Mr. F. Lyon; subject for discussion: 'Cheap Bar-frame Hives for Cottagers' Use.' (2) On Wednesday, April 6, by Mr. C. N. Abbott, Editor of the *British Bee Journal*; subject for discussion: 'The Hive for the Advancing Bee-keeper.' (3) On Wednesday, October 12, by the Rev. H. R. Peel; subject for discussion: 'County Bee-keepers' Associations: their Objects and Development.' A copy of each paper, and the report of the discussion subsequently held thereon, has been forwarded to each member of the Association.

A lecture (in lieu of the Quarterly Paper) was delivered in the Council-room of the Royal Horticultural Society, South Kensington, on Tuesday, July 26, the first day of the show, by Mr. Frank R. Cheshire; subject: 'Bees as Florists' Hybridizers and Fruit Producers.'

The Committee are glad to report that there has been an increased demand for the various books and pamphlets published by the Association. A new edition of *Wintering Bees*, by Mr. T. W. Cowan, considerably enlarged, has been printed. The second edition of *Modern Bee-keeping*, issued in February last, has been disposed of, and a new edition, enlarged and revised by the Committee, is now ready. A full list of the Publications of the Association will be found at the commencement of this Report.

Several valuable donations of books have been added to the Library, for which the thanks of the members are due to Mr. J. P. Jackson, Mr. H. Jonas, Mr. C. N. Abbott, Mr. T. W. Cowan, Mr. John Y. Detwiler, Mr. J. J. Hunter, Mr. A. Neighbour, Mr. J. Walton, Mr. E. S. Wheeler, and others. Arrangements have now been made by which the books are made available to members residing in the country by means of the book-post. Catalogues, together with Rules and Regulations, and every information relating to the Library, may be obtained upon application to the Librarian, Mr. G. Henderson, Clarendon House, Ealing.

Mr. Henderson makes the following report:—'I have much pleasure in reporting to the Committee that since my acceptance of the office of Librarian to the Association in November, 1881, I have been enabled to procure an addition to the Library of sixty volumes. The number of books and tracts having a reference to Apiculture on the shelves of the Library is at the present time upwards of 120. The addition of books that I have been privileged to make has been due to the generosity of several public-spirited members of the Association, and to the kindness of the Committee in permitting me to purchase such volumes as have fallen in my way. (1) Books.—The books in the Library are fairly representative of the English and American works on bee culture which have of late years been published. There are a few of the eighteenth-century apiarian authors to be found there; while I regret to say that foreign works on bee-keeping are conspicuously absent. (2) Periodicals.—It gives me much pleasure to report that I have been able to perfect the series of the *British Bee Journal* and the *American Gleanings of Bee Culture*; and I have great hopes, if not of completing, yet of making considerable additions to, the volumes of the *American Bee-keepers' Magazine* and the *American Bee Journal*. (3) Trade Catalogues.—I purpose endeavouring to make a collection of the various trade catalogues which are issued by the makers of bee appliances, seeing that they contain the records, and generally some illustrations of the progressive ingenuity and inventive faculty of those so engaged. It is frequently the case that the inventions of to-day supplant those of yesterday; and as it is desirable that a "local habitation" should be provided for them before they are consigned to the limbo of the past, the shelves of the Association seem to be a fitting place for their reception and preservation. I hope I may be favoured with copies of the catalogues of hive-makers throughout the kingdom. (4) Borrowers of Books.—I have already been applied to for books by several members; and I trust that, when the Library is better known, and the facilities of borrowing more recognised, I shall have more numerous applications. (5) Catalogue.—I have drawn up a catalogue of the contents of the Library, a copy of which accompanies this report. It will be seen from it how much is required to be done in the way of increase before it can be entitled to be considered (to use the words of Mr. J. P. Jackson, the original promoter of the Library) "A National Bee Library." It is satisfactory, however, to know that a beginning has been made—that the foundation has been laid; and it is to be hoped that, by the generous help and kindly sympathy of the members generally, and the patient and painstaking efforts of the Committee, the Library will be worthy of the British Bee-keepers' Association, and prove itself a precious and valuable *Bibliotheca de Apibus*.'

The Committee regret that the permanent collection of Hives and Appliances at the South Kensington Museum is not yet by any means worthy of the Association. Contributions to this collection have been made by Mr. S. J. Baldwin, Mr. J. M. Hooker, Messrs. Neighbour and Son, and Mr. T. W. Cowan; active measures are now being taken for its completion by Mr. H. Jonas, 64 Redcliffe Gardens, S.W., who has kindly undertaken the office of custodian to the collection. Contributions of appliances and natural objects relating to the cultivation of the honey bee have been promised by Messrs. Abbott Bros. and others. As soon as a suitable place has been allotted, these objects will be collected and arranged. Mr. Jonas will be glad to receive any specimens of rare bees, their enemies or diseases, and of anything likely to add interest to the collection. All articles intended for this collection should be addressed, 'The Store-keeper, South Kensington Museum, London, S.W.'

The following report has been received from Mr. S. J. Baldwin in regard to the sales on honey which have been effected on behalf of members during the past year:—'I beg to report, for the information of the Committee, that, notwithstanding the unprecedented large harvests of honey made by the members of the British and Affiliated County Associations during the past year, there has been but little difficulty in finding a ready sale at good prices, and in most cases by members themselves. There are many respectable houses in London quite willing to take the matter up, if a constant supply of honey is forthcoming. So that members have nothing to fear as to the sale of their honey, if put up in a neat and attractive form. 1-lb. sections are in greater demand than any other size. Extracted honey in jars, from 5 lbs. to 20 lbs., is frequently inquired for. During the past year I have received from members 710 lbs. of honey, 450 lbs. of comb honey in sections, and 260 lbs. of extracted honey; for the former I paid 1*s.* 3*d.* per lb., and the latter an average of 1*s.* per lb. Some of the consignments have been both carelessly and insecurely packed,

which has been the cause of much waste of honey and time.—(Signed) S. J. Baldwin.'

The Committee desire to call the attention of members to the last clause of Mr. Baldwin's report, and to state that consignments of honey must be sent to Mr. Baldwin, or to his order, in proper travelling crates, and that in all cases samples of the honey must be sent to and be approved of by him, previously to the consignment being sent for sale. The Committee hope that the system of packing honey for exhibition in travelling crates will soon be better understood and more generally practised. There will then be little risk in sending honey to the shows.

The Annual Show of the Association was held in the gardens of the Royal Horticultural Society, at South Kensington, on July 26 to August 1 inclusive. This Exhibition was by far the largest ever held by the Association. The exhibits of honey were numerous and of excellent quality; large sales took place, and good prices were realised. Sections of comb-honey and extracted honey in glass jars were shown in a greatly improved form. The prizes were distributed to the successful competitors on the third day of the show, by the Baroness Burdett-Coutts, President of the Association, in the absence of H.R.H. the Princess Christian, who was prevented by the death of a relative from fulfilling her promise to discharge this office.

The Association made its second appearance at the annual show of the British Dairy Farmers' Association, held in the Agricultural Hall, Islington, on September 15 and the following days. A good display of hives for general use was exhibited, but the entries in the honey classes were not quite so numerous as they were last year.

By invitation of the council of the Brighton Health Congress, a display of honey, hive, and other bee-keeping appliances, was made at the Domestic and Scientific Exhibition held in the Royal Pavilion, Brighton, on December 12 and following days. At a meeting of the members of the Congress, held on Thursday, December 15, J. R. Holland, Esq., M.P., in the chair, a paper on 'Honey as Food' was read by Mr. T. W. Cowan. A Certificate of Merit was awarded by the judges to the exhibits of the Association.

The Committee note, with much pleasure, the support which is now being given to the promotion of bee-keeping by several of the leading Agricultural Societies. During the past year the Association made its first appearance at the annual show of the Bath and West of England Agricultural Society, held at Tunbridge Wells; prizes were offered for honey, hives, and other appliances. The Bee Department was visited by many thousands of persons, who evinced much interest in the exhibition.

With regard to their balance-sheet, the Committee would call attention to the fact that, although the amount to be carried over to the 1882 account is not large, the receipts and expenditure of the Association have both been considerably increased. They confidently hope that, as the importance of the work the Association is carrying on becomes more recognised, it will receive increased support, and thus enable the Committee for 1882 to extend their operations into many counties where bee-keeping, upon the humane and profitable system, is but very little understood.

The Committee are also glad to state that the Royal Agricultural Society of England have this year increased their grant from 20*l.* to 30*l.* The Association is thereby enabled to extend its prize list for bees, hives, honey, &c., at the Royal Agricultural Society's Show, to be held at Reading on July 10 and four following days. It is hoped that a similar subsidy will be granted by the Bath and West of England Agricultural Society for a similar exhibition at their annual show, to be held at Cardiff.

In conclusion, the Committee have to state that arrangements have been made for holding the Annual Show of 1882 at the Royal Horticultural Gardens, South Kensington, on August 3 and following days, and that H.R.H. the Princess Christian has consented to present the prizes to the successful competitors.

The statement of receipts and expenditure for the year ending 31st December, 1881, was also read by Mr. Cowan.

The President moved, and the Rev. F. T. Scott seconded, 'That the Report and Balance Sheet, as read by the Secretary, be received and adopted, with a vote of thanks to Mr. Kirchner, the Auditor.'

Mr. J. E. Littleboy moved, 'That votes of thanks be given to the retiring Officers and Committee.'

Mr. T. W. Cowan proposed, and Mr. J. M. Hooker seconded, 'That votes of thanks be given to the Council of the Royal Society for the Prevention of Cruelty to Animals, for the gratuitous use of their Board-room for Committee and Quarterly Meetings.'

Sir Francis Burdett expressed the very great pleasure the Royal Society for the Prevention of Cruelty to Animals had in having their Board-room occupied by the British Bee-Keepers' Association, as he considered that the objects of the two Societies were identical.

The Rev. E. Bartrum proposed, and Mr. D. Stewart seconded, 'The election of President, Vice-Presidents, Treasurer, Auditor, and Secretary, for the year 1882, in accordance with Rule 8.'

Mr. Cowan returned thanks on behalf of Mr. Peel for his re-election, in doing so he stated that Mr. Peel desired him to say that he hoped the meeting would confirm the resolution passed at the last committee meeting, viz. 'That the sum of 30*l.* be granted during the current year for the purpose of assisting in the development of County Associations by means of lectures.' (Confirmed unanimously.)

The President was sure every one present regretted the absence of Mr. Peel, and sympathised with him in his illness. She moved that a vote of condolence of the meeting with Mr. Peel in his illness be passed. (Carried unanimously.)

The Assistant-Secretary having read the results of the election for the Committee of 1882, Mr. Cowan moved, and the Rev. E. Bartrum seconded, 'A vote of thanks to Mr. Willard for his services as scrutineer of the voting papers.'

The Rev. G. Raynor moved as an amendment to Rule 8—'That the words *by the Acting Committee* be struck out, and the following words be added, *from the unsuccessful Candidates according to the priority of votes obtained at the Election.*' He said the rule, as it stood at present, had always appeared to him objectionable. The Committee was a representative body, elected by the members of the Association, and, as such, ought strictly to represent that organization. But he maintained that, in effect, it failed to do this. He would put to them a case. Supposing a vacancy to have occurred on the Committee, and at their next meeting merely a quorum of three members to have assembled, and that, instead of selecting the first name on the list of unsuccessful candidates, from motives of interest or favouritism, they took some other, even the last it might be; he asked would that be acting justly either towards the individual or the Association? To him, therefore, on the very face of it, it seemed best to remove a temptation which tended towards injustice, or at all events permitted it. He had pleasure, therefore, in moving the amendment.

The amendment was seconded by the Rev. F. T. Scott, and carried.

Mr. T. W. Cowan proposed, and the Hon. and Rev. H. Bligh seconded, 'That the thanks of the British Bee-Keepers' Association be voted to Mr. Charles Nash Abbott for the liberal manner in which he has hitherto promoted the interests of the Association through the pages of the *British Bee Journal*, and that the *British Bee Journal* continue to be regarded as the official organ of the Association.'

The Rev. G. Raynor proposed, 'That it is desirable that the British Bee-keepers' Association do set forth a *Standard frame*, stamped by its sanction and authority, with the view to bringing such frame into general use, its size and form to be determined by a committee appointed for that purpose.' He said that he felt it to be a subject of the greatest possible importance to the bee-keepers of this country, and to all, indeed, who were either technically or otherwise interested in the art of bee-culture, for *art* it most certainly was, and that of the highest order. If he were able, or inclined, to go through all the advantages which would undoubtedly arise from the adoption and propagation of a standard frame, neither time nor their patience would suffice for the task. He would, therefore, endeavour, very shortly, to state a few of the most prominent of these. First, then, would be the inter-changeability of all frames. How great a boon this would be manufacturers of hives, vendors and purchasers of bees, and of other apiarian appliances, might well tell them, and he expressed a hope that many such were present who would support him that day. Indeed this point could not well be over-estimated, especially now that bee-culture was being taken up extensively by some of our leading agriculturists. A few days ago he had received a letter from a cultivator of many broad acres in Lincolnshire, to the effect that he was investing largely in bee-culture, and upon modern and approved principles. He was a large grower of mustard-seed, and it had rightly occurred to him that, in entering on the practice of this industry, he might largely increase the fertility of his crops, and at the same time reap a golden harvest from the produce of his bees. And what a field was opened to the bee-farmer, by the thousands on thousands of acres of mustard, with its rolling plains of golden bloom,—by the fields of fragrant white clover and other honey-producing plants. He rejoiced that, at last, the farmers were showing signs of a movement in the right direction, for if once they could be induced intelligently to cultivate the honey-bee, the labourer would soon follow his master's example and teaching. At such a crisis, then, how highly important it was—far more so than at any former period in the history of this country—that this Association should come forward boldly, and stamp with its authority, a standard frame, so that the transfer and sale of bees and hives might be rendered easy of accomplishment throughout the length and breadth of the land. Honey-extractors would then come into more general use, since one size alone would be required. What was the case at present with regard to the frames in use—their name, like their size and shape, was Legion? The one which lay upon the table—approaching the Langstroth in shape and size—would not be suitable for this country. There were some even larger and more unwieldy than this, and others barely half its size. He did not wish to enter into detail, since if this resolution met with the approbation of the meeting, a committee would be appointed, and to it all details must be left, nevertheless he thought that something was due to this assembly. They must, however, consider that anything he might say was merely his own personal opinion. From the discussion which had taken place on this subject after the reading of his paper on Houses and Hives, at the last quarterly conversazione of the Association, his views were pretty well known, and he was agreeably surprised, on that occasion, at finding so general an agreement on the desirability of possessing a standard frame. He might say then, for himself, that he thought a twofold frame should prevail—of rectangular and of taper forms—each frame to contain equal superficial contents. Each should be, as nearly as possible, of the size of the old Woodbury frame, but one important point was that the one-pound section should form its basis. In other words, the frame should be capable of receiving an equal number, say six one-pound or three two-pound sections. This he thought a most important point. In practice there would not be found the slightest difficulty in adapting these sections to a tapered frame as well as to a right-angled one. Indeed, he used them in his own apiary, the adaptation being the simplest possible. The dimensions he would advocate would be inside dimensions, because in that case the strength or thickness of the material used would be of no consequence; what we wanted was the actual comb-surface. It would be a mistake to attempt a standard hive. It was the frame we required. Then the hive might be used of any size by increasing or diminishing the number of the frames. Some five or six years ago, the subject of a standard frame had met with a decided negative when brought forward by this Association. Unhappily, its councils were then divided: he did hope that they would be more successful now. He would not detain them much longer, but would like, shortly, to endeavour to answer prospectively a few objections which he felt might be brought against a standard frame. These were that uniform extractors and uniform frames would be found a certain means of spreading disease. But surely this was a futile objection! Even if it were the case, we have a full knowledge of disease—the chief of which was foul-brood—and we knew how to eradicate it. In all other transactions of life the maxim *caveat emptor* was fully acted upon, and he had yet to learn that bee-keepers, as a rule, were more easily cheated than other classes. We do not refuse to enter a hired conveyance or a railway carriage through fear of its former occupants having been afflicted with some infectious or contagious disease. In every phase of life we have these risks to encounter, and may therefore dismiss this objection. Again, there have been some who have said, 'Wait until we can have an international standard.' To this he replied that we should have to wait the natural course of our lives. An international standard frame would be no more attainable than an international monetary standard, the establishing of which, we are all aware, whenever attempted, has failed, and, he believed, always would fail.

As regards our exhibitions, he would say, 'Do not make your standard frame a *sine quâ non* for hive competition.' To do so, he thought, would be an act of injustice to many, since it would disqualify those hives to which they had hitherto awarded prizes, and had thus encouraged their sale. But let the new frame take its chance amongst others, and do no more in its favour than to give it the preference *cæteris paribus*. If he might be allowed to make a forecast, he would say that it would soon work its way into public favour, and thereby so great an impetus would be given to our national bee-culture as neither we nor our forefathers ever beheld.

Mr. T. W. Cowan seconded the resolution, which was carried *nem. diss.*

The following gentlemen,—Messrs. C. N. Abbott, T. W. Cowan, F. Cheshire, J. G. Desborough, J. M. Hooker, Rev. G. Raynor, A. Neighbour, and Rev. F. T. Scott—were appointed the committee to carry out the foregoing resolution.

The Rev. W. Burkitt proposed, and the Rev. J. H. Dixon seconded, 'That the term "Cottager," as referred to in the British and County Associations' Prize Schedules, should receive some authorised definition at this general meeting.'

This resolution was discussed at considerable length, the *bonâ fide* cottager proving somewhat analogous to the *bonâ fide* traveller—very hard to define. It was the general opinion of the meeting that each County Association should make its own definition, according to circumstances, and the clause in the resolution relating to the County Associations was accordingly withdrawn. In respect to the Central Society it was left for the Committee to take the matter into consideration and report to the next General Meeting.

The President expressed her hope that both the Central and County Associations would consider the matter carefully. She hoped nothing would be done to deter the better class of working men from exhibiting. It might be found advisable to make two sections of classes —one for *bonâ fide* labourers, and the other for artisans, railway men, &c.

A cordial vote of thanks to the Baroness Burdett-Coutts for her kindness in presiding over the meeting was passed unanimously.

The Library.—The Librarian desires to acknowledge, with thanks, the receipt of the following books:—

From the Rev. H. R. Peel, several volumes in numbers of the *American Bee Journal*, *American Bee Magazine*, and *Elsässisch Bienenzuchter*; and from Mr. C. N. Abbott, several supplementary numbers of the same.

From Mr. T. W. Cowan: R. Huish, The Cottagers' Manual, for the Management of Bees for every month in the year. Second edition. London, n. d.—Thomas Nutt, Humanity to Honey Bees; or Practical Directions for the Management of Honey Bees. Wisbech, 1832.

From Mr. J. Camaschella: Pietro Benuzzi, Innovazioni Apistiche. Milano, 1881.

From Mr. W. T. Joyce: J. W. Pagden, Early Artificial Bee-Swarming.

From Mr. J. T. Harveyson: Rev. W. C. Cotton, M.A., My Bee Book. London, 1842.—Dr. Lardner, The Bee and White Ants; their Manners and Habits. With Illustrations on Animal Instinct and Intelligence. London, n. d.

The following works, acquired by purchase, have been added to the Library:—

Moses Rusden, A Further Discovery of Bees, treating of the Nature, Government, Generation, and Preservation of the Bee. London, 1679.—J. Simon, Le Gouvernement Admirable, ou la Republique des Abeilles. Paris, 1758. —P. L. Ducouedic, La Ruche Pyramidale; ou nouvelle méthode de conduire les Abeilles. Rennes, 1806.—A. Schmid und G. Kleine, Leitfaden für den Unterreicht in Theorie und Praxis einer rationellen Bienenzucht. With 151 figs. Nördlingen, 1865.—W. E. Shuckard, British Bees: an Introduction to the Study of the Natural History and Economy of the Bees indigenous to the British Isles. With 16 coloured plates. London, 1866.—C. De Ribeaucourt, A Manual of Rational Bee-keeping, translated from the French by A. F. G. Leveson-Gower. London, 1879.—J. F. Robinson, British Bee Farming: its Profits and Pleasures. London, 1880.

BRITISH BEE-KEEPERS' ASSOCIATION.

Donors to Prize Fund for 1882.

	£	s.	d.
H. Bostock, Esq.	2	2	0
J. W. Bassano, Esq.	1	1	0
F. R. Jackson, Esq.	1	1	0
H. Jonas, Esq.	1	1	0
Messrs. Neighbour & Son	1	1	0
H. G. Morris, Esq.	1	1	0
Rev. H. R. Peel	1	1	0
Rev. G. Raynor	1	1	0
Thos. F. Ward, Esq.	0	10	6
Rev. J. L. Sisson	0	10	0
Mrs. Leigh Spencer	0	10	0
F. Lyon, Esq.	0	5	0
G. Allen, Esq.	0	5	0
Rev. Thos. Milles	0	5	0
Mr. J. Rodham	0	5	0
Mr. J. Walton	0	2	6

BEE TENT FIXTURES, 1882.

British Bee-keepers' Association.

May 24, 25.—Oxfordshire Agricultural Show at Witney.

July 10–14.—Royal Agricultural Show at Reading.

July 11. Hampton Hill Horticultural Show.

July 26.—Dane Hill, near Uckfield, Horticultural Show.

August 3–8.—British Bee-keepers' Association Annual Show at South Kensington.

August 30, 31.—Great Yarmouth Horticultural Show.

Hertfordshire Association.

July 27.—Potters Bar Horticultural Show.

RULES FOR THE HON. & REV. H. BLIGH'S ECONOMIC COMPETITION.

1. The object of this competition is to show the relative merits of different systems of bee-keeping, and to prove that bee-keeping, if conducted on economical principles is highly remunerative to the bee-keeper.

2. Competitors shall be members of County Associations affiliated with the British Bee-keepers' Association residing within the recognised boundaries of their respective counties, or members of the British Bee-keepers' Association residing in the county of Middlesex. Each competitor shall be limited to one entry, and shall pay an entry fee of 5*s*.

3. Prizes of 6*l*., 5*l*., 4*l*., 3*l*., 2*l*., 1*l*., shall be awarded in order of merit to the competitors, who shall derive the greatest profits from an experimental apiary of not more than two hives at the outset which may be increased to any extent by natural or artificial swarming, the total capital to be employed in commencing and maintaining the apiary must not exceed 2*l*., and the competition to extend from May 20th, 1882, to August 30th, 1883.

4. The apiary shall be established in the garden of some cottager to be selected by the competitor, and approved by the Secretary of the County Association, or in the case of the county of Middlesex by the Secretary of the British Bee-keepers' Association.

5. The competitors shall keep a diary (a duplicate of which shall be kept at the cottage), in which all transactions connected with the apiary shall be recorded, and each item of expenditure and receipt entered. Such diary to become the property of the British Bee-keepers' Association at the close of the competition.

6. Each hive shall be weighed, and the weight minus the roof and covering shall be recorded in the diary. The hives shall be stocked with bees without combs, the bees to be valued at 4*s*. per lb. Comb foundation may be used at any period of the competition at 2*s*. 6*d*. per lb. for thick, and 3*s*. per lb. for thin. No bees, brood, or natural comb, to be imported into the apiary after commencing. Queens may be introduced into the hives at any period of the competition and shall be valued as follows:—

In the month of May . . . . 8*s*. each,
" " " " June . . . . 6*s*. "
" " " " July . . . . 4*s*. "
" any other month . . . . 3*s*. "

All expenses incurred after the commencement of the competition must be defrayed from the original capital of 2*l*. Vouchers must be produced for all purchases made throughout the competition, including hives, bees, and any appliances used at the commencement.

7. Each competitor may make his own hives and supers, but vouchers for the cost of the materials must be produced and the workmanship valued by the Secretary of the County Association or an expert appointed by him.

8. Every amount expended in the apiary for food or any other incidental matter of whatever nature shall be charged against the apiary, and everything legitimately sold shall be set down in its favour. Vouchers must be

produced for all swarms and honey sold during the competition according to the printed forms supplied to each competitor for this purpose.

9. The Secretary of the County Association may visit the competing apiary at any reasonable time, or may appoint an expert to do so. The record of such visits together with any remarks which it may be advisable to make to be entered in the diary, which shall always be accessible for the purpose.

10. The competitor shall certify that during its continuance he has fulfilled all the conditions imposed by these rules, and that all his entries in the diary are true. The Secretary or his expert shall certify as to the quantity and value of the honey produced by each competitor.

11. Any attempt at fraud will be punished by disqualification.

12. All entries must be made on the proper printed forms and accompanied with the entry fees, on or before May 1st, 1882. Application for entry forms to be made to the Assistant Secretary, Mr. J. Huckle, King's Langley, Watford, Herts.—HERBERT R. PEEL, Honorary Secretary, Thornton Hall, Stony Stratford, Bucks.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

We are pleased to announce the formation of a Bee-keepers' Association for Derbyshire. President, His Grace the Duke of Devonshire. Hon. Secretary, *pro tem.*, Mr. H. V. Edwards, Ockbrook, Derby, to whom all communications are to be addressed.

CORNWALL BEE-KEPERS' ASSOCIATION SHOW.

The Committee of this Association have decided to hold their first Exhibition of Bee Manipulation at Launceston, in connexion with the Show of the Royal Cornwall Agricultural Society, on the 14th and 15th of June. They have also decided to offer a prize of 20*s.* for the best bar-frame hive for cottagers, price not to exceed 5*s.*—All information to be obtained of Chas. Kent, Esq., *Hon. Sec., Truro.*

ESSEX BEE-KEEPERS' ASSOCIATION.

The first annual meeting of this Association was held in the Board-room at the Corn Exchange, Chelmsford, on Friday, Jan. 20.

The statement of accounts for the past year showed a balance against the Society of 1*l.* 3*s.* 10*d.*; but Mr. Aubrey pointed out that really there was no deficit, because the Society had the bee tent, which was worth nearly 25*l.* He then read the annual report.

Mr. Aubrey said a claim had been made upon the Society for damage done to hives lent to the lecturer in the bee tent. The Rev. Mr. Watson, of Sutton, lent some bees for the Shoeburyness Show. That gentleman claimed two guineas, but the committee thought that one guinea would quite compensate him for the damage. The committee came to the conclusion that as the bees had not swarmed by the 17th June, the day of the show, they were not in a particularly forward state.

Mr. Aubrey said that although in a paper read before the British Bee-keepers' Association it had been stated that in fine weather it was possible to make ten, fifteen, or even twenty pounds with a bee tent, the Essex Association had only cleared about 7*l.* on all the shows that it had attended. The Hertfordshire Bee-keepers' Association attended eleven shows, and they only made a profit of less than 6*l.* He mentioned this because it might be thought their officers had not properly done their duty at the bee tent. It did not seem possible to make 20*l.* at one show.

Mr. Debnam: We should have to be crowded all day long to get that amount.

Mr. Aubrey: And charge more money, too.

The report and balance-sheet were then adopted.

LINCOLNSHIRE AGRICULTURAL SOCIETY AND LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Lincolnshire Agricultural Society (following in the wake of the Royal) has decided to add to their programme at the forthcoming show (to be held at Sleaford on the 19th, 20th, and 21st of July), that of a BEE EXHIBITION, and have voted the sum of 20*l.* to be offered in prizes for bees, honey, hives, &c., and a conference between that Society and the Lincolnshire Bee-keepers' Association has been held respecting the Schedule of Prizes and to make other requisite arrangements.

It is not intended that the Bee Exhibition to be held at the Lincolnshire Agricultural Society Show should take the place of the annual exhibition of the Lincolnshire Bee-keepers' Association, which will be held as usual in September, most probably at the city of Lincoln.

BRITISH BEE-KEEPERS' ASSOCIATION CONVERSAZIONE.

Discussion on the Rev. G. Raynor's Paper on Bee-houses and Hives.

The Rev. E. Bartrum said that all must feel indebted to Mr. Raynor for his excellent paper, and he certainly was grateful, notwithstanding the hard hits his friend had administered to the Stewarton. He was happy to hear from a friend in the room that his harvest from the Stewarton in 1881 had been earlier, larger, and more profitable, in a pecuniary sense, than from his bar-frame hives, so he supposed there was room for both kinds of hives. Mr. Raynor had not used the improved Stewartons with bar-frames, so that he had scarcely given a fair trial to that which he had so strongly condemned. A Stewarton could scarcely be kept in a bee-house, as the roof would require to be taken off if the hive prospered, and super upon super was added. The Rev. H. J. Wilcox, the late Hon. Secretary with Mr. Peel of the Herts Association, had spoken with great enthusiasm of his bee-house and its results, but his experience had not been a very long one. The difficulty of removing the various hives from the bee-house every time they required attention seemed to him a fatal objection. A 'very busy man' could scarcely remove each hive to the shade of a neighbouring tree, substitute another in its place, and then manipulate and return the hive to its former position without a serious loss of time. He fully agreed with Mr. Raynor with regard to a common standard. The question was becoming one of pressing importance. The Germans had recently discussed and agreed upon a common standard, and we might well follow their example. Almost every new writer, either of a book or a paper, suggested some new standard differing slightly from what had been adopted by others, making confusion worse confounded. An attempt at uniformity seemed very desirable, and he hoped the Association would take the subject up. In conclusion, he expressed his hearty thanks to Mr. Raynor for his interesting and excellent paper.

Mr. Jessie Garratt (Kent Association) said that Mr. Raynor seemed to have lost sight of the fact that the size of the frame affected the operation of slinging. He considered that a 12-inch frame was better adapted for the extractor than one of the oblong shape, as the frame could be put in it as it was in the hive, and consequently the liability to breakage would be lessened. He had been much pleased with a paper that had been read some time ago by Mr. Lyon. He had found Mr. Lyon's hive both cheap and simple, and he had adopted Mr. Lyon's ideas, and had found great convenience in the size of his frames. Even tender combs might be slung in the natural position, while those in the unnatural were apt to give way. He was able to confirm the remark made

by Mr. Raynor as to the scarcity of swarms this last season. A Kent bee-keeper had averaged twenty pounds of honey per hive from eight stocks of bees. Mr. Bartrum said that in the Stewartons it was not necessary to disturb the bees, yet it was desirable that honey should be easily removed. He might mention that the size of the Lyon frames was $10 \times 8\frac{1}{2}$, outside of box $12\frac{1}{2} \times 9$.

Mr. Lyon said that the design of his paper had been to suggest to the cottager the desirability of rendering lobster-boxes serviceable as hives. The size of these boxes was: outside measurement, $18 \times 12\frac{1}{2} \times 9$; frame, $11\frac{3}{4} \times 8\frac{3}{4}$ from top of hive to inch of bottom. As for the standard frame, the Woodbury size should have the preference, $14\frac{1}{2} \times 8\frac{3}{4}$, or deducting $\frac{1}{4}$ for thickness of wood, $14\frac{1}{4} \times 8\frac{1}{2}$. This would not be so violent a wrench, and its adoption would render a less number of present hives unserviceable. But much depended on the shape of the top bar of the frame.

Mr. Glennie stated that six or seven years ago this question of a standard hive had been discussed. At that time there was considerable diversity of opinion respecting it: Captain Martin, Mr. Abbott, Mr. Rusbridge, and Mr. Lee, each looking at it from his own point of view. It was at that time found desirable to waive the consideration of the matter. But if now it was thought possible to establish a uniform size of frame, he was strongly in favour of the Woodbury size,—Mr. Woodbury being a kind of patron saint among bee-keepers.

Mr. Neighbour said that the size of his frames was 12×10. He had an objection to the tapered shape: it was not easy to make; and he considered that the square or rectangular was the more useful and more capable of being easily made and easily worked.

Mr. Baldwin said he had no feeling against the use of a standard frame; and in the event of its being adopted by the Association he would most readily adapt his frames to that size. He considered the tapered form of the frame a great advantage in manipulation, and thereby there was much less danger to the queen. His frames were $13\frac{1}{2}$ at top, $12\frac{1}{2}$ at bottom, and $8\frac{3}{4}$ deep.

Captain Campbell considered it was very desirable that a standard frame should be adopted by bee-keepers. He was of opinion that frames of a uniform shape might be produced at a cheap rate; and if bee-keepers could see that that was the case, and that the use of the standard frame would prove more economical, it would be a great inducement for them to accept it. It would be honourable to associate the name of Woodbury—the pioneer of the bar-frame—with the proposed change.

Mr. Hooker said he should be happy to adopt in his future hives the size of frames arrived at by the Association.

Mr. T. W. Cowan said he had some experience in bee-houses, as formerly he had kept all his bees in lofts over his stables. Two hives were placed at each window, on tables about three feet high, and the entrances to the hives were about three feet apart, so that they were not close together. The only drawback to the lofts was the great loss of bees in chilly weather, when many of them returning laden with honey or pollen, dropped down and were not able to rise. It was very easy manipulating the bees, because when the hives were opened most of the bees would fly to the light, and, as the window opened outwards, they could be easily let out, and the window closed again. There was very little danger from robbers. He was not now able to have bees in a loft, but kept most of them on separate stands. He has, however, a bee-house something similar to the one described by Mr. Raynor. The hives in this stand in separate compartments in pairs. The porches in front are painted different colours, so that the young queens may easily recognise their homes. At the back there are folding-doors, and a board on hinges at the bottom nine inches high, made to fall down when it is wanted to draw out the hives. For wintering the hives were put close together, and the bees in one shut off with a division-board on the right, and of the other on the left, so that the two stocks helped to keep each other warm. The whole of the outer space could be filled up with chaff, nearly eighteen inches in width, and this, with chaff on the top, placed bees in a very good condition for wintering. He preferred the bees on one shelf as low as possible, and thought two shelves one above the other would be awkward for manipulating. Although his bees were not a foot off the ground many were thrown down on to the ground. Mr. Raynor had mentioned Mr. Root's bee-houses, as described in his *A B C of Bee-culture*. Mr. Root did not use separate hives in his hexagonal houses. He had boards for front and back fixed on the shelves, these were rabbeted along the inside of top edge to allow the frames to hang on, and the colonies were kept apart by division-boards only. On this plan the adjoining colonies could be easily united, and the hives extended by removing the division-boards and introducing frames. If he (Mr. Cowan) wished to build a bee-house on a large scale he would certainly adopt this principle. As the bees would be in the dark he would provide a window to allow them to escape. Mr. Root works his bees by lamp-light, but he (Mr. Cowan) thought Mr. Root could not be serious in recommending this plan. He had tried it, and did not think anyone who had once done so would repeat the experiment. He was very much stung; on opening the hive the bees boiled over, were furious, and flew at the lamp, and most of them did not return to the hive. His first experience of work by lamp-light was not very encouraging. With respect to the shape of frame he thought a tapered frame was very convenient, as it allowed the frame to be taken out of the hive easily, but for the present he thought we should not give up the rectangular frame. During last year he had seen that the Americans had tried the plan of inverting the frames, so as to place the top of the frame containing the honey to the bottom and the brood to the top. He did not know if there was much in this; but if there was, a rectangular frame would be much more easily adapted to this purpose than a tapered one. He had tried two frames, and certainly with these two frames, when inverted, the bees carried all the honey from the bottom into the supers, as the top was filled with brood, and brood was raised in the bottom part. The bees also filled up the space between the comb and bottom bar with wax. Further experiment in this direction is certainly worth making before we adopt a taper frame. He would mention that an intermediate hive between the straw skep and the wooden moveable-comb hive was found in that known as the Sherrington hive. It was for those who preferred straw a good and cheap hive. Mr. Bartrum, our champion of the Stewarton, had asked Mr. Raynor if he had tried the latter with frames and all the latest improvements, but he (Mr. Cowan) would say to him, Don't, as with the experience of Mr. Raynor, the advantages to be derived from a moveable-comb hive were very much greater than from a Stewarton. He had last season fully carried out the 'Renfrewshire Bee-keeper's' instructions, and removed the supers as soon as the cells nearest the windows were sealed. The result being that not one of his supers was completed on the outer combs. The Stewarton is not a moveable-comb hive in the full sense of the term, as only the centre combs were moveable. He quite agreed with Mr. Raynor that broad shoulders, distance-pins, or racks, were superfluous, and were only in the way of improvements of the frames. The Giotto hive he had tried, and was obliged to give it up in disgust, as it always got propolised and the frames stuck together. He remembered when the question of a standard frame had been discussed by the Committee; and it was abandoned because the hive-makers who had been consulted could not agree with the Committee as to size. The

general feeling seemed to be in favour of the Woodbury size, which was 13×7½ inches, inside measure, and he himself should certainly prefer a frame as nearly that size as possible. In some districts, the Langstroth and Abbott frames were too large. In Sussex he had found the best results were obtained from the Woodbury size frame. He was very pleased that Mr. Raynor had introduced the matter before them, and should certainly give it his support.

Mr. Neighbour said that the Stewarton hives were now made with brass screws.

Mr. Cowan said that he was aware of this, but objected that the central combs could not be placed to the outside if necessary.

Mr. Baldwin said he had tried the inverting process, but he had not found it very successful. He knew a case of reversal of frames where the bees broke down the combs and built them up afresh.

The Chairman inquired, how, presuming that improved bee-houses were adopted, would the cottager be able to procure them. In bee-houses he thought that more bees would be lost than in separate hives. He considered that the nearer the mouth of the hive to the ground, the less number of bees would be lost: his hives without legs were placed on bricks, so that the bees might get home easily. With regard to having an uniform standard, he had found that the frame with the strongest comb was the best, and he considered the square frame the preferable for that purpose. He had a slinger in which the combs were hung in the natural manner, but still they were broken.

Mr. Hooker said that his hives had boards reaching to the ground from the mouth of the hive.

Mr. Cowan said that there would be no danger in extracting, if the comb touched the wire on both sides.

The Rev. G. Raynor, in reply, said that he would not make further allusion to the Stewarton hive, his main objection to it being the great difficulty of manipulating and examining its contents, in consequence of propolisation. It was true that he had not used the hive in its improved form,—when fitted with moveable frames,—but his objection would have as great force in this case as in the other, and for the same reason. In referring to Mr. Garratt's remarks 'that a 12-inch square frame was better adapted for the extractor than one of oblong shape, since the frame could be placed in the machine in the same position which it occupied in the hive, and thus become less liable to fracture,' he thought in actual practice very little difference would be found to exist; he could say that he had no experience of breakage to any extent in the case of the oblong frame when placed endwise in the extractor. Mr. Neighbour's suggestion that the taper frame would be more difficult of construction than the rectangular, he thought was hardly correct, as country joiners and others, who were in the constant habit of supplying the taper frames, appeared to experience no difficulty: indeed since all frames either were, or ought to be, made upon blocks, the labour and expense would be much the same in either case. He was extremely pleased to find so general a desire expressed in favour of the adoption by the Association of a standard frame. This was the one point on which he had expected to find the greatest amount of opposition; but, looking to the reception his suggestion had met with that evening, he felt that, to the great impetus which the Society had already given to bee-culture, another addition would soon be made,—that of giving to the world the best size and form of a moveable frame as the standard of the British Bee-keepers' Association, and to which it would attach the name of its greatest apostle, the late Mr. Woodbury, since it was evident that the dimensions would most nearly coincide with those of the frame used by him.

He was rejoiced to hear Mr. Cowan state that he used bee-houses, and approved them, but his own experience did not tally with that of his friend as regarded the loss of bees. His own houses, down from the lower tier of hives to the ground, were closely boarded to prevent the bees from being blown underneath, and so perishing; and the higher alighting boards, ranging at the distance of 4 feet only, from the ground, did not seem to cause greater loss in chilled bees than was the case with hives on separate stands. He took the precaution, however, of scattering sawdust around all his houses and hives, which he thought, especially on a cold soil or lawn, a great preservative of bee life. When Mr. Cowan spoke of inverting frames in order to induce the bees to transfer their honey to the supers, he could not think that this could be done with advantage. The cells were built with an upward pitch, and, consequently inverting the frames would reverse the pitch. Now the bees could scarcely use cells in such a position, either for brood or honey: and if they were compelled to cut them away, down to the mid-rib, and build new ones, great loss of time would be involved. Besides, the bottom bar of the frame having become the top one, would require to be lengthened in order that its ends might extend to the supports.

Then, as to manipulating by lamp-light: he had occasionally practised it with success, notably after the severe snow-storm of a year ago, when twelve of his frame-hives were partially filled with snow, and he had removed them indoors and transferred the combs and bees to dry and clean hives by lamp-light. He had placed the lamp in front of the hives whilst he manipulated behind, and the few bees which took wing soon returned to the hive with very little loss or disturbance.

To the remark of the Chairman that he feared the expense of a house would be beyond the means of the cottager, Mr. Raynor replied that since the cottager would not require an elaborate or ornate structure, if a handy man, he could soon put together a house, and material was inexpensive. He would not detain them longer, but would offer them his best thanks for the kind manner in which they had received his remarks.

Mr. Cowan, in proposing a vote of thanks to Mr. Raynor for his excellent paper, said he had seen some bee-houses made by a bee-keeper who kept forty hives, and as they were a very cheap form, they would do for a cottager. They consisted of some boards for a shelf, pieces of quartering at the corners, and a light frame for the doors and roof, and the whole covered with asphalte roofing felt, which could be obtained very cheaply.

Mr. Stewart seconded the proposition.

On rising to return his acknowledgment for the vote of thanks accorded, Mr. Raynor said it had given him very great pleasure to meet them all there that evening,—indeed the evenings spent at these quarterly *conversaziones* were amongst the pleasantest of his life. The few remarks he had been able to throw together in his paper had been so cordially and so kindly received, that he felt more than rewarded for any slight labour they might have cost him; and when he thought of the great amount of good compassed by assemblies of this description, where members from remote parts of the country met together, received and gave hints on their favourite subjects of bee culture, and carried new ideas back with them, he felt that the Association was spreading knowledge, and doing a work, which no other organization could perform. Again thanking them, and expressing a hope that they might meet again on many similar occasions with equal pleasure and advantage, he would not trespass longer on their time.

The Rev. E. Bartrum proposed, and the Rev. T. Sisson seconded, a vote of thanks to the Chairman for presiding on the occasion.

A suggestion was made that a resolution respecting the adoption by the Association of a standard frame, should be brought forward at the General Meeting on the 15th of February.

BEE-HOUSES AND HIVES.

Kindly allow me a short space in reply to your critique on my paper 'Houses and Hives.' In the first place, there was no occasion for an *apologia pro vitâ auctoris*, since in all my conversation with friends I have never heard, even by implication, 'interested motives' attributed to you. On the contrary, we are all impressed by the great and good work you have carried on for so many years in spreading abroad a better and sounder knowledge of apiculture.

When, therefore, we differ—as differ we must—on certain points of management, let us not call these differences 'bitter experiences.'

Your remarks on my omitting to quote Mr. Root's 'disadvantages'—as well as 'advantages'—of 'House Apiaries' almost amount to a charge of *suppressio veri*: but I feel sure that you did not intend to bring so serious an accusation against me. In my paper I had stated, under six heads, the disadvantages usually alleged against houses, and had endeavoured to answer them to the best of my ability, and in accordance with my experience. Under these heads were included, as I supposed, all, or nearly all, of Mr. Root's objections.

The first in both lists was 'expense:' this I proved—to my own satisfaction, at least—to be an error in respect of my own house. Mr. Root's next objection is that 'most apiarians prefer working in the open air to being cramped up in a building.'

I submit that this is merely matter of opinion. For my own part, in very hot, or very cold weather, I decidedly prefer working indoors. The only other objection he makes is the 'disturbance' of young bees.

This question of 'disturbance' I had already considered. Indeed, at the close of your quotation, Mr. Root answers it himself by saying, 'To obviate this trouble we can avoid opening the hive during the afternoon, or at such times as the bees are likely to rush out for a play—after a shower, for instance.'

You also regret that 'my *success* with houses should have induced me to recommend them in face of the consensus of opinion being decidedly against them.' Some years ago I believe opinion to have been against them, but now, judging from the discussion on my paper, and from other unmistakeable signs, I believe that an improved system of apiculture is bringing them into favour. Again, if *success* in the use of any article is no recommendation, what is to recommend it?

To your objection that 'the comparison of my bee-house with Mr. Root's house apiary was barely legitimate,' I reply that I made no such comparison, but carefully avoided it.

I designated Mr. Root's as a 'house apiary'—my own as an inexpensive moveable 'Lee-house.' I may, however, be allowed to say that a house-apiary on Mr. Root's plan might be erected at much less cost in this country than in North America.

Here we have not to provide against a temperature of from 10° to 20° below zero, for two months together, during the winter, and of 120° of heat in the shade during the summer; consequently houses, less substantially and expensively erected, will answer our purpose.

Many advantages of house-apiaries, enumerated by Mr. Root, I could not introduce into my paper, nor will I ask you now for space. All can read them for themselves. But as strongly confirmatory of my view, just stated, let me quote a few lines:—'With the strides that bee-culture has been making recently, new reasons have come up for making it desirable that hives should be housed: and in spite of the difficulties, many house-apiaries are now giving very good results, and with, perhaps, less labour than when the hives are kept in the open air.'

And now the only remaining subject on which we differ is the Giotto principle. Here I fear we are 'wide as the poles asunder.' With our present practice of contracting hives for the winter—say to five or six frames—I cannot see that the small amount of space unoccupied at the ends of the frames can form any valid objection to the ordinary moveable suspended frame.

During the two or three seasons that I have wintered on this plan, the bees have gone through in perfect health, without any sign of dysentery. Surely this shows that there can be no current of air circulating around the open ends sufficient to cause injury to the bees. To the propolising of the closed ends I certainly have an insuperable objection, as also to their crushing powers. One form of the Quinby hive is a closed-ended frame, but not a closed-top frame, and of this Mr. Root says:—'With a small colony, and a *new* hive, either closed-top or closed-end frames may be handled very well; but with an *old* hive so full of bees that they cover the end bars of the frames so that they prevent your seeing the wood at all. . . . . Well, if you think we don't know how, try one such hive yourself, or visit someone who *knows* how, if such there be. A careless person might not be aware that he killed bees at all, and some do not seem to care, but to me the sight of the quivering form of a little fellow, crushed and mangled, while the closed-ends are being brought up into place, is enough to spoil the pleasure of bee-keeping.'

I have been careful to quote from Mr. Root only, because I know that both you and I esteem him very highly for his works' sake, and were it not for trespassing on your space, I could give much more to the same effect from his pages; but let this suffice.

After all, it is not *men*, but *measures—principia non homines*—to which we ought to look to guide us through life's tortuous paths. *Magna est veritas et prævalebit.*—GEORGE RAYNOR, *Hazeleigh Rectory, Feb.* 11, 1882.

P.S.—My old friend, Mr. Carr, of Newton Heath, writes to me that he was the first to introduce the wedge-shaped frame. He states that seventeen years ago he wrote to me, recommending his bar-frame hive with wedge-shaped frames. I remember the correspondence, but forget about the hive. He also states that 'Messrs. Neighbour, many years since, described his wedge-shaped frames in their catalogue.' I must leave you to settle the point with Mr. Carr. For myself, I was under the impression, and have always heard it stated, that you first brought out the *tapered frame*, making the hive with *tapered front and back* to match the frame, for the sole purpose of facility in manipulation, and not for the purpose of more safely retaining the combs, either when built or tied in the frames, which Mr. Carr states to have been the object of his frame.

[We earnestly thank our reverend and esteemed correspondent for his kindly observations at the head of this communication, and assure him that he but does us justice in acquitting us of all thought of imputing the slightest doubt on his truthfulness. As regards the subject in hand, which has become a little mixed through the importation of house apiaries into the argument, it would perhaps be well to divide it into its proper sections that there may be no further misunderstanding.

We have, then, hives, bee-houses, and house apiaries—three distinct subjects though intimately related to each other. A bee-hive intended to contain one, or even two (twin) stocks is in a sense a bee-house, but does not come within the meaning of the term as applied by Mr. Raynor, any more than a bee-house (a hutch to contain a dozen closely packed hives, the subject of Mr. Raynor's commendation) is within the meaning of the term 'house apiary;' and one cannot fairly apply what may be said in favour of the last-mentioned domicile to that previously named. The house apiary of Mr. Root, and the stable lofts of Mr. Cowan, in each of which there is ample room for all kinds of manipulation, and in which lively bees under manipulation fly to the windows, while other bees are kept out, are very different affairs to the bee-houses of Mr. Raynor in which the hives are so closely

packed that none of them can be examined without removal to a distance. But Mr. Root and Mr. Cowan admit that there are serious drawbacks even to the house apiaries, and in respect of the bee-house advocated by Mr. Raynor, Mr. Cowan's opinion and experiences are decidedly adverse. Writers great and small are generally adverse to 'bee-houses' and in favour of separate stands; and though with some of these bee-sheds, *i.e.* large covered areas are held permissible they by no means recommend them. Wildman, Langstroth, Quinby, Dzierzon, Pettigrew, Hunter, Cheshire, and a host of others condemn 'bee-houses,' and it was with this consensus of opinion in view that we expressed the hope—perhaps clumsily—that Mr. Raynor's commendations would not lead to further 'bitter experiences,' by inducing new trials of an exploded system. Several correspondents have during the past month given their ideas on the subject, which will be found in other columns, and for the present we leave it.

Regarding the hive with close-ended frames, or, as 'put' above, the 'Giotto principle,' we should be sorry to think our opinions so widely differ as Mr. Raynor describes, and feel assured that they are not: for, again, we do not write of the same thing: and if he will take an opportunity to visit Fairlawn, we will undertake, if not to convince him, at least to terribly shake his opinion, which is now so deadly opposed to the Giotto principle. We cannot believe that it is the *principle* that is in fault, but can quite understand that practical experience with hives on a wrong principle of construction may have disgusted our esteemed friend and fellow-worker in the cause of truth. Truth is great and will prevail, and only those who have honestly sought it, though perchance erroneously, will be able to stand when it is declared. Earnest, truth-seeking men can afford to differ in opinion, but before the mighty truth itself they will be as one, both having sought and having found her.

But, now, another dive into 'the well,' to bring out the truth as regards the tapered frame. It is true that Mr. Carr's hives of many years since had frames that were slightly wedge-shaped, but it was no part of the principle of their adoption that they facilitated manipulation by lessening the danger to bees. Though the frame was slightly tapering, the hive was rectangular, and the declared object of the wedging was that combs would be prevented falling, for if they tried to fall they would only be the more firmly held between the narrowing frame ends.—Ed.]

BEE HOUSES AND HIVES.—SEPTAGONAL HOUSE.

In re your remarks in February *Journal*, a neighbour had a septagonal house, and in an ecstasy of joy I built one. It was ready all but the inside fittings. In the meantime I had become conscious of the backward tate of my neighbour's bees on the north and west sides. In spite of all the temporary shelter he could give them they made no discernible progress, thousands continually perishing. This was in 1879. In 1880 they still kept falling to the ground unable to rise whenever it was cold. My house has never been made a 'bee' house yet, and never will, that is my experience of a septagonal. My bees were kept in a long shed and did well. The shed faced the south.

My humble opinion is (and I have tried Pettigrew's system) that bar-frames are best. The most convenient way is to have them in a garden on their own legs, so that you can get about them.

Bees do not require more protection than their hives afford them. I have seen bees wintered, 1878, with the hive standing on two bricks so that they could put a plate of food under for them whenever it was fine, and they were ready to swarm as soon as any in the locality. Mine are made of half-inch pine, close ends, six bars, remainder for sectional boxes.—Parent Stock, *Feb.* 15.

BEE HOUSES AND HIVES.—AN OUT-DOOR APIARY.

It was with much surprise that I perused the paper upon 'Bee Houses and Hives' by the Rev. G. Raynor, which appeared in the February *Bee Journal*. Nothing seems to me more calculated to cripple and hamper an operator when overhauling a hive than to be cribbed and confined inside a bee-house. Mr. Raynor seems to find Stewarton hives, as regards manipulation, 'a sealed book,' and well they may be, inside a bee-house. Stewarton hives are not intended to be experimental hives for rearing queens and frequent examination. They are designed, and, as far as my observation enables me to judge, are admirably calculated to produce very large harvests of perfectly pure virgin comb honey.

My first Stewarton hive was stocked in 1874; this hive is still in existence, and has, with one exception, yielded me a good honey harvest every year since. In 1876 I obtained 141 lbs. of pure super honey, and 6 lbs. of slung honey from this colony, and last summer it produced more than 1 cwt. of splendid super honey. To show what these hives will do in an out-door apiary, I may state that only three hives last summer (all Stewartons) were devoted to honey gathering. One hive produced 130 lbs., another 114, and the third about 113 lbs. of super honey of the very finest quality. Each hive filled and completed 4 supers, and two more from each hive were finally removed partially filled. Out of these 18 supers, only one had been contaminated with either brood or pollen, and that to only a very small extent; though I never use queen-excluding zinc. In estimating the result obtained from these hives, it must be borne in mind that the bees here have nothing to rely upon for filling their supers but white clover and lime-trees, and our harvest generally terminates soon after the middle of July. The bees had no assistance given to them beyond fixing narrow strips of foundation, about one-third of an inch deep, along the bars to keep the combs straight.

I should hesitate before I ventured to turn out the population of one of these large colonies inside a bee-house, but have no difficulty in manipulation them out in the open. The utmost amount of interference which they require is the removal of royal cells if they chance to swarm; formerly on these occasions I was accustomed to overhaul all three stock boxes, which is undoubtedly a troublesome operation; but as I never but once found any royal cells in any stock box but the upper one, I now content myself with a thorough examination of this one only, which is a very simple and easy task, as fully three-fourths of the bees are absent with the swarm. The protection of my hives is extremely simple and inexpensive, and so efficient that the hives for five months, though without crown-boards, and covered only with pieces of old carpet, are so dry even after a long winter campaign, that I find the blue tacks which secure the quilt quite clean and free from rust when removed in the spring. My hives have no double sides or cork linings, but the bees seem to me to pass the winter quite as well in plain wooden boxes, with proper ventilation, as in the most elaborate hives.

I have a colony at the present moment in a Woodbury frame hive obtained from, and I believe made by, Mr. Woodbury in 1861 or 1862. I examined this colony upon the 6th of February, and found bees between all the combs, and at least five of the frames contained brood. The hive has not been fed, or in any way stimulated or interfered with, since the autumn. I find that this frame-hive, made of yellow pine, was colonised upon the 19th of May, 1862, and it has been almost constantly tenanted since that date, but is, notwithstanding so many years' exposure in an out-door apiary, almost as good now as when I first obtained it from Exeter.—J. E. Briscoe, *Albrighton, Wolverhampton, February 16th.*

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE IRISH BEE-KEEPERS' ASSOCIATION.

I crave space for a reply to your attack on the Hon. Sec. of the Irish Bee-keepers' Association in the current number of the *Bee Journal*.

Your statement as to the anxiety of the Royal Dublin Society that we should be represented at their April show surprises me, as I never heard of this anxiety before. But I did hear Canon Bagot (who is vice-chairman of the Agricultural Committee) state at our preliminary meeting when the question of having our Bee Tent at the Royal Dublin Society's Horse Show [last year, Ed.] was discussed, that space for the Bee Tent would not be given unless we (the Association) undertook that the bees would be in confinement. Shortly after this I had a letter from the Canon suggesting that we should apply for space at the Dairy Show which the Royal Dublin Society at that time thought of holding in the beginning of last October, and in the course of the letter he said that there was not the least chance of our getting space for the Bee Tent at the Horse Show. Notwithstanding this, applications, both written and personal, asking for space were addressed to Mr. R. J. Moss, the Registrar of the Society, but the reply was a refusal. All this is, of course, quite consistent with the Society's being anxious that we should be represented at the April Show; but their anxiety not having been expressed to me in any shape or form, I think I may be excused for believing that an application to them for space this year would not have a more favourable reception than those made last year.

I shall not trouble myself with the statements of correspondents who use the Editor of the *British Bee Journal* as a sort of earthwork from behind which to fire their shots.

I trust you will allow me to express in general terms a regret that the *British Bee Journal* should so often be made the medium for personal attacks. Of course I know that a stern sense of duty often compels, &c. &c., and that the interests of bee-keepers require, &c., &c., but a glance through the volumes of the *Journal* will show that those same lofty motives frequently lead to acrimonious personal attacks, which, although they may be successful in getting a certain sort of notoriety for the paper, are by some people regarded merely as exhibitions of questionable taste on the part of the writers.—Robert Sproule, *Richmond Road, Fairview, Dublin, Feb. 9.*

[If the above is the best answer that can be made to our remarks, for which we are alone responsible, we very much regret the position of affairs as regards the Association referred to. In taking office, honorary though it be, whether as president, treasurer, secretary, or committeeman, one accepts responsibilities as well as 'position,' and honour attaches only in proportion to their fulfilment, and it is scarcely fair to ascribe to personal motive any well-founded complaints of laxity in any respect. The correspondents whose statements we quoted made no such use of 'the Editor' as is imputed to them: we heard from several sources that 'nothing was being done,' and feeling a deep interest in the Associations which we had a large share in causing, and have earnestly helped in promoting, a sense of duty, 'stern' it may be, impelled us to inquire in quarters where there could be no suspicion of personal motive, and the replies warranted (as we believe) the remarks which appeared in our previous issue. That they have been met in an acrimonious spirit is regrettable, but is no fault of ours. We remember, nevertheless, that but for a little 'spurring' by 'the Editor' about this time last year, the Irish Bee-keepers' Association would have given up the ghost through faint-heartedness on the part of the present Honorary Secretary—see page 197 of the February No. 1881.—Ed.]

THE WONDERS OF THE HIVE.—THE LARVA.

A correspondent in your number for this month on 'The Cell of the Bee,' points out the wonderful manner an all-wise Creator unerringly directed the bee to build a perfect cell for itself, unimprovable from the beginning, the same yesterday, to-day, and for ever, which we usually designate as instinct, and quite unattainable by the insect itself without this Divine gift of instinct.

As supplementary to his letter, with your kind permission I would bring more prominently under the notice of your readers another fact that I do not find so frequently recorded or alluded to by writers on the physiology of the bee, but which is equally remarkable. It is this, that in the larva of the bee, the alimentary canal has no opening at its hinder extremity, consequently all the nourishment taken by the grub or maggot in its undeveloped and transition state of being is absorbed, therefore it does not require to void any unassimilated matter, because there is none; if it were otherwise, we can imagine the unfit condition the beautiful combs would be in afterwards, for the reception and storage of the pure ambrosial nectar, distilled in nature's laboratory, and obtained from thousands of odoriferous flowers.

'Chance can do nothing; there's no turn of earth,
No, not the blowing of the summer wind,
Or the unstable sailing of a cloud,
Much less the destiny of mighty states,
But hath a Will that orders it.'

How different is the larva of the silkworm, more especially in its last stage or moult before spinning, when it increases in size as much as six-fold in the short space of nine days, eating enormously, and making an amount of excrement in proportion, requiring very careful attention to cleanliness and ventilation, on the part of him who would successfully pursue sericiculture.—Hy. H. Beakbane.

SPARROWS AND BEES.—HONEY YIELD.—BEE-HOUSES.

Will you kindly allow me to refer to a letter in last month's *Journal* signed 'Buzz,' with the object of getting the above heading placed in your index, for I believe that more damage is done by sparrows than is generally known.

By the by, is not the harvest of honey and comb (240 lbs.) from two stocks of bees in one season, and besides four swarms—and without reckoning the produce of two of the swarms—an extraordinary yield? I have heard of Plymouth in connexion with gin, but never expected to hear it flows with honey to such an extent.

Bee-houses.—I have a bee-house capable of holding twenty-four hives, and after considerable experience can fully endorse what our excellent friend, the Rev. G. Raynor, styles its advantages; but I am sure that gentleman has never been swept out with foul brood, or he would never have the courage to mass so many hives under one roof again.—T. F. Ward, *Highgate.*

BEE-STINGS.

With reference to the 'sting-point' drawing in your *Bee Journal*, will you allow me to remark that it is totally different from any I ever saw? Possibly your correspondent has drawn the two barbs inside the sheath, but in this case he is far from the original. If he is sure he has made no mistake, I should much like to see the bee (*Apis mellifica*), which has such an exceptional weapon.—F. M. Campbell, *Rose Hill, Hoddesdon.*

WINTERING WITH AN ANTE-CHAMBER.

In preparing for the winter I shifted my frames to the middle of the hives, which are on the Combination principle, and placed at each end of the brood-nest a two-inch dummy filled with bran so as to leave an ante-chamber and a rear-chamber. The entrance under the front dummy was not made in the centre opposite the hive entrance, but began at the corner and slanted inwards. A slanting tunnel of perforated zinc connected these two entrances, and the hair-quilt extended over the front chamber; so that it must have been almost as dark as the brood-nest itself. And now, I wish to know, is this the reason of the peculiar behaviour of my bees?

I see from the *Journal* that other bees have been very active. My brother-in-law, who also began this year, finished up with one very strong stock, well provided with sealed food; but he left no ante-chamber. His bees are always on the wing. In November they had eaten all their store and were starving. He has had to feed them ever since. They have never ceased all this winter to carry in pollen (where did they get it from)? I think I may safely say that not even the finest, sunniest day has tempted my bees out since the last week in October; and they are still very numerous, very healthy, and have hardly touched their provisions.

My brother uses the same class of hive, the same bran dummies back and front, the same quilts, and only lives about two miles off. His stock was the stronger in every respect; the better supplied; we ceased feeding at the same time; the only difference I can see is that I made a dark ante-chamber and he did not. The hives all look to the south, and all have the sun on them all day long. Can you explain the difference in their behaviour? This is my query; please answer it.—G. W. S., *Streatham, Feb.* 2, 1882.

[The facts almost speak for themselves. There can be little doubt but that the dark ante-chamber caused the bees to believe in a long continuous night, as they appear to do when confined in a cellar. There was no light, no solar heat, no activity, and consequently very little consumption of stores or loss of bee life.—Ed.]

CORK HIVES.

I was very much interested by the paper which the Rev. G. Raynor read at the *conversazione* of the British Bee-Keepers' Association on 'Bee-Houses and Hives;' and the more so when I found the reverend gentleman unearthed a paragraph of mine from the *Journal of Horticulture*, for December 23, 1869, on 'Cork Hives.' I hoped the idea I then threw out would have been taken up and improved upon long before this; but as it was not done, I thought it had gone into the *fossil* state, and would be no more heard of. But our reverend friend, wandering about among his 'bee-lore,' geological hammer in hand, digs up the long-lost paragraph and brings it again to the light of day. And I do hope, Mr. Editor, that either you or some other enterprising bee-master will soon present to us the details of a model hive in which cork will take its proper place as the best material for ensuring that equable temperature in both summer and winter, which is best for the health and prosperity of our favourites.

The idea suggested by the Rev. G. Raynor is, to my fancy, as good a one as can be brought forward, viz., to make the inner walls of cork, and the 'outer walls of straw or pine, minus the crown-board of cork,' and these double walls could be filled with cork chips, or parings, and thus the greatest security given against sudden changes of temperature. Of course, in those days we never heard of 'double walls,' or of 'quilts,' and had no *B. B. Journal* to guide us in better paths; and my friend, the late Mr. Woodbury, made all his hives with 'crown-boards, whether of wood or straw. I may say I have the old original cork hive yet; but as no one seemed to think anything about my suggestion, and I had more Woodburys than I could use, I never made another, although I have had many swarms of bees in the old one since; but judging from the price I paid for the side-pieces, by using a quilt instead of a 'crown-board,' cork hives with single walls would be almost as cheap as any, and even with outer walls of half or three-quarter inch pine would not be very dear; and any one with a little mechanical skill could make them.

How it makes us poor townsmen long to be in the country, to read of the 'weeks' of honey harvest in Essex. But here we are, the pleasing prospect around us on every hand is 'brick, interminable brick,' and our bees must go a long way to find 'pastures new,' and we are often very much disheartened at our little success. And then business engagements take up so much time, and you cannot lend your eye to an assistant, and, as in many other cases, very often they 'having eyes,

see not' what our pets require, and so their interests are neglected.

With regard to bee-houses, I have been thinking lately (as I have had to remove all my bees, owing to the ground being required for building purposes) whether it would not be a good plan to place them in an out-house, one storey high, with a proper tunnelled way for ingress and egress. Would that be too high for them? I find when they take to air-gratings between floors they seem to prosper amazingly, as I know two instances where such has been the case. One, some two or three years ago, where, after taking up some boards from the chamber floor, and removing stores of honey-comb (I think they said a cart-load), at the time of my visit the honey was actually coming through the ceiling of the room below. Of course, in these cases they had gone there of their own accord; perhaps if one had tried to place them there contrary to their own sweet will they would most likely have flown away in disgust and sought other quarters.

As Mr. Raynor seems quite in favour of bee-houses, do you think I might try some in the out-house, as above mentioned?—J. R. Jessop, *Hull.*

CLOSE-ENDED FRAMES.

Seeing so many questions and so much correspondence concerning close-ended frames, perhaps my experience of the same may not be uninteresting to some of your readers.

Last June I hived four swarms in as many hives with close-ended frames. I gave six frames of your flat-bottomed foundation to each swarm, and at the end of a week I extracted honey from two frames in each hive. The frames were not at all propolised, and on the two or three occasions that I have examined the hives I have had not the least difficulty in moving the frames. In fact, I am so pleased with results that I am now making ten hives of the same pattern for the coming season. The hive is your Irish or Combination upon fixed legs 24 inches long, with tapering Standard frame (Abbott's) with $\frac{1}{4}$ inch space between frame-ends and sides of the hive. The frames are of the make you suggested in January *Journal* of 1881 (I think it was, but I have lent the volume so cannot refer), and moreover the frames are available for use in any double-walled hive of Abbott's No. 1 Standard size. One can understand the difficulty there would be from propolisation with badly-made frames, but with frame-sides cut with a fine-toothed circular saw, and not touched afterwards, it is different. The bees have been quite satisfied with the solid wall thus formed.

If you think the foregoing worth publishing you will honour me greatly, but if it does not appear I shall not be offended.—W. Walker, Junr., *Welcombe House, near Stratton, North Devon, Feb.* 6, 1882.

PARSON'S SMOKER.

I send you one of 'Parson's Cottager Smokers,' which, I think, fulfils all that is required of a smoker. To make it, take a soft india-rubber ball, and make a hole in it rather smaller than the tube which you are about to insert. Next take two inches of brass or other tube about $\frac{1}{4}$ inch bore, and insert it into the ball about $\frac{1}{2}$ an inch; now wrap your rag or paper round the free end of the tube, tie, light, and puff away. The burning substance being exposed to the air keeps alight until it burns down to the brass. A more convenient form would be one shaped like a medical injection bottle. If you think these worth making for sale I shall be proud of your copying it.—H. Parson, *The Firs, Guildford.*

[It appears too simple to manufacture for sale, for every one can make it.—Ed.]

THE SEX OF THE BEE OVA.

In the columns of the *British Bee Journal*, as well as in *Gleanings*, edited by A. I. Root, I occasionally find opinions expressed on the above subject, which seem to me to barely harmonise with entomological fact; and, if my memory serves me correctly, Professor Cook, in his *Manual of Apiculture*, advances the theory that the sex of egg is determined, if not by the will of the queen, by the abdominal pressure to which she is subjected in depositing eggs in different sized cells; whilst others, with a semi-claim to the appellation of naturalist, consider the will of the insect, in controlling the quantity of sperm, supreme in this matter of sex. I am not, however, aware that any definite conclusion has been arrived at through demonstrative evidence; and, therefore, with your permission I would narrate a few observations taken last season, and which appeared to settle this question.

In my small apiary, consisting of five hives, located in the centre of Montrose, a burgh of about fourteen thousand inhabitants, I had arranged, during the first days of August, to send four hives to the heather, above Fasque, a distance of over fourteen miles; and some time after their despatch I discovered that my remaining hive, a stock hive, from which a top swarm had been taken, was queenless, the young queen having evidently been lost during her wedding tour. All the brood in the said hive was capped at this time, and I was at a loss how to procure eggs from which to raise another queen. However, about the end of August I obtained, from a hive at Rossie Gardens, about an inch square of worker comb charged with ova; this I attached with a small piece of wire to a comb in queenless hive, and two queen-cells were speedily raised thereon. After a few days I observed that all the eggs disappeared from the square of comb, and in about a week from the time of giving eggs, I found a number of drone-cells filled with the whitish substance, common to larvæ at this stage; and it naturally occurred to me that I had overlooked the queen in previous examinations. But, then, why these two queen-cells? And on a still more close scrutiny, and comparison of the number of cells in previously mentioned square, with the larvæ in drone-cells, I noted a harmony, and thus found what accounted for the previous disappearance of eggs. Here I could not fail to conclude that the all-wise Creator had endowed this insect

with a forethought and power, probably, unequalled in the animal kingdom. They knew that they wanted a queen and prepared their cells accordingly; they also seemed to know that without a male to mate that virgin queen, their colony would become extinct, hence, they transferred the eggs from worker to drone cells, to prevent such a fatality.

The result was in the month of October, I had a queen performing all the functions of her position, and several drones were then flying.

One more corroboration I noted in one of the hives, previous to its being sent to the heather—a queen dropping eggs, not in cells, but on the top of the comb, whilst a number of bees were eagerly, yet very orderly, waiting and picking up these eggs and depositing them in cells.

In this case could the queen instruct the bees where each egg was to be put, if her will regulated the sex; or did they instinctively know the particular cell? It could scarcely be. The only warrantable and logical conclusion is, that the ovum of a fertilised queen, in a sense unlike that of a virgin queen, or even a fertile worker, belongs to neither sex, being for the time neutral, having its future sex determined by the cell in which it is placed, and the treatment to which it is subjected by the bees.—K. Edward, 35 *John Street, Montrose.*

[If the accident of an egg being in a drone or worker cell causes the bees to determine its sex by special treatment consequent on the egg being so deposited, as implied by our correspondent, we should be glad if he would endeavour to harmonise his views with the fact so often demonstrated, of drones the progeny of both fertile and virgin queens being reared in worker cells. If the eggs of a fertile queen are neutral until they have been deposited in a cell, and 'treated' by the bees, of what character are the eggs of a virgin queen, or a fertile worker? and if the bees have the habit of removing eggs and afterwards determining their sex, can our correspondent suggest a reason for their extreme faultiness when being queenless they are unable to change the sex of drone eggs however hard they strive to raise a queen from them?—Ed.]

COTTAGERS.—BEE CENSUS.

In your January number, page 191, Mr. Thorpe opens up a subject concerning 'cottagers,' which is of great interest to us cottagers who are, or hope to be, exhibitors at future shows. In the first place what constitutes a *bonâ fide* cottager? Is it a man living in a cottage under or at a certain rental, or is it an agricultural labourer proper who lives in a thatched cottage at a yearly rental of, say, 2*l.*? The first-mentioned cottager may happen to be a mechanic, shoemaker, blacksmith, tailor, small shopkeeper, or carpenter, or even as your humble servant a watchmaker, whose work is at home, ready for any emergency in the swarming and honey-gathering season, and which can be laid down for a few minutes and attention given to his bees, and generally he is in a better position to purchase or make hives than the agricultural labourer whose wages are small, and who goes to his work early and returns late during the very time his bees are or ought to be harvesting honey. Is it fair and just to put these two classes of men against each other at a show? The poor labourer is very heavily handicapped in comparison to the mechanic; and again is it right that the mechanic who may have, say, twenty hives, and consequently if he works them on the 'Section' system would have a large number to pick his sections from for exhibition,—I say is it just to other exhibitors for him to be allowed to stage two entries in one class, and take two prizes, while other exhibitors in the same class who have good exhibits are deprived of a prize because two prizes in one class have been awarded to one man? I don't say his exhibits are not deserving of the awards, or that the judges are to blame in the least. Their business is to judge, and give awards to the best exhibits staged, not to inquire who are the exhibitors. The fault lies with those who allow the entries to be made.

I quite agree with you in last month's editorial anent the 'Bee Census;' and if anything comes of it I shall be pleased to enumerate my district, say, in a radius of five miles, taking my cottage as a centre, and although there is a pretty good number of hives in this part there are very few frame-hives. I only know of one besides myself who has any, but I hope to be able to induce others to start this coming season. I never let an opportunity slip without dilating on the very great improvement the frame-hive is on the old straw skep; and when I tell you how I started last season with four stocks, two in straw skeps and two in bar-frame hives, and have now ten stocks, five in skeps and five in bar-frame hives, and that I have taken off (besides increasing my stocks) 150 lbs. of honey, all of first-rate quality, in the comb, and that I am making twelve new bar-frame hives, and hope to get them all filled ere the season is over, you may guess how encouraging it is to others to go and do likewise.—Woodleigh.

ITALIAN BEES.

After seeing the Italians praised so much in nearly all the bee books and papers, I resolved to procure some. So in March, 1880, I sent an order to Bologna for some swarms, which arrived here May 31st. I put them at once into frame-hives (I use Abbott's Standard frames) fitted with empty combs and foundation, which were soon filled with brood to the very bottoms and sides of all the combs; so I added more frames until I had nine in each hive full of brood, and the number of bees increased rapidly. So far my best hopes of them were confirmed. The next thing I expected of them was a good crop of honey, but in this I was disappointed. I doubled some, and supered the others; but they did not gather one-tenth as much honey as the black swarms I had the same time; but the black swarms were nearly three times as strong in numbers as the Italians, so the blacks were ready for the harvest when it arrived, while it was about half over before the Italians were in a condition to gather. But I hoped that they would do much better this year, as they were so much crowded with bees, but as the autumn advanced they dwindled away faster than the blacks. Now for this year's experience. In the spring they were all (eight stocks) weaker than the blacks. As the spring advanced, however, they were breeding faster than the blacks, but so many of them were falling to the ground and perishing that I

must believe they are much weaker than the blacks, but still they kept strong in number. When the harvest arrived they were much crowded. To give them a fair trial, I tried different plans with them. With two stocks which were in Combination-hives I proceeded thus:—I placed the excluder zinc after the ninth frame, added six empty combs behind, and on top a Makeshift hive containing eight combs of brood which were taken from two other hives (Italians). So each had nine frames to breed in, and fourteen to gather honey. I did this before the harvest arrived, and so also with the blacks. On the top of another I placed a Makeshift hive containing one comb of brood and seven empty ones, with the queen confined to eight frames. The other three stocks I supered, and confined the queens to from six to nine frames each, but all with the same result, viz., not nearly so much honey as the blacks—perhaps about one-third as much. When the honey harvest was nearly over, in spite of all the precaution I had taken, I had a swarm from one of the Combination-hives which weighed about 12lbs., leaving fourteen frames nearly empty. What good were they when they would not gather honey? Five of the eight imported queens have died, for which I am not a bit sorry. But I don't believe that all that has been written in favour of the Italians is false-hood, so I think we ought to get some explanation on the matter. I do not know whether this place is too cold for them or not. I noticed in the *British Bee Journal* some time ago a report of an address by Dzierzon, in which he took the precaution to mention the locality from which he had his Italians, and so I have done the same. Also, I noticed in the *British Bee Journal* a person advertising Bologna queens at so much, and yellow Alps at three or four shillings dearer; so I think that the locality from which they are imported might have something to do with it. I, for one, should be glad to see this matter well sifted.—W. H. JONES, *Lily Cottage, Clydach, Swansea, S. Wales.*

P.S.—During the honey harvest (which was not very good here, nothing like what you say in the *Journal* you have enjoyed) I had twenty stocks, from which I took about 650lbs. extracted, and 50lbs. comb honey: pity they were not all blacks! I now have twenty-five stocks, which I have fed with about 4 cwt. of sugar (the Italians took about twice as much as the blacks); some of them are hybrids, which I hope will do better than their parents.

Honey Market.—From time to time I have noticed persons asking how they can dispose of their honey. The way I do is this. I advertise in a local paper, and then send the honey to the market, with scales and weights, and empty bottles, and I get no trouble in disposing of my honey; many bring their own vessels to put it in.—W. H. J.

A STANDARD FRAME.—THE BEST AND CHEAPEST EXTRACTOR.

Many of the readers of your *B. B. J.* are greatly pleased to see that an approach is being made to a Standard hive, and so far as the 'north countrie' is concerned no size will be more acceptable than about the Woodbury, for if larger, only in a very unusually fine season is it at all useful, and even then it is not nearly so remunerative as a smaller. If a hive is made inside 14½ ins. wide, by about 9 ins. high, and to hold as many frames as may be required (with dummy division-board), and supers, the owner is not badly off, and nothing would assist so much in doing away with the old straw skep. I do not mean by this that I would like to see all hives made to this size, for if they were so there would be almost an end to all experiments, and a consequent stand-still; but in sale, or purchase, of a stock, one of the first questions is as to the size of frames, and at present the answer would most probably not be satisfactory, whereas to be able to say 'The Standard' would be quite sufficient, and in this way I consider a good fillip would be given to the trade.

I would like very much to see an article in next month's *B. B. J.* by you, as to extracting honey from combs. I believe there is not an extractor within many miles of this, and now that strong foundation is much used, there is an outcry against 'box honey comb,' meaning, of course, the strong midrib of the foundation. You should state which you consider the best and cheapest instrument for ordinary small bee-keepers, whose combs and frames are not by any means the same size, and how the sealed combs are to be prepared before placing in the extractor, and what is to be done with the cappings if roughly taken off; also how can you tell when the honey is ripe for the purpose, as it is understood that new-made honey does not always keep—this may be when the honey has not been sealed.

I remember seeing one of your extractors, a couple of years ago, making capital work; but I was told it only did for particular-sized and shaped frames, or I think I should have purchased one then. I hope you will not be too modest to say so, if you think it is the best and cheapest for the purpose I name, and of course saying whether it is adapted to extract for any frame that will go into it, and for loose comb. Does the presence of bee bread in the comb spoil the honey in extraction?—NORTHERN COUNTRY, *Penrith.*

[The Standard frame question was mooted by us in the winter of 1875, and had it been taken up by the Association at that time, when there were comparatively few frame-hives or frame-hive makers in England, it would have been easy of adoption. Now, when there are a hundred times as many hive makers and vendors, and a thousand times as many hives in existence, it will be many years before a Standard will become general, because its introduction will be essentially slow. Manufacturers will object to it because it will necessitate the making (in most, if not in all, instances) of a hive differing from that they at present produce; and working hive-makers with limited means may find this a hardship, because it will necessitate a double stock in preparation for the season.

We are, however, glad to be able to state that a sub-committee has been appointed to go into the question, and we trust it will be well thrashed out.

Regarding extractors and extracting we hold that no machine in which the combs are made to revolve in a stationary can is anything like an approach to perfection, because it is totally unfit for the slinging of combs containing brood, on account of the rapid cooling which takes place during the operation. Viewed in this light, which is a most important one, we (with due modesty) believe our 'Little Wonder' to be the best, as it is the cheapest, and the most portable. It is said that Cowper made a large and a small hole in a door to let a cat and a kitten through, and our 'Little Wonder' is of two sizes, to suit the frames of different apiaries, the smaller size will not take the larger frames, but the larger size will take any frame at present in use in the bee world. We shall be glad to publish an article on extracting in due time, but at present limited space prevents that pleasure.—ED.]

FOLK-LORE.

Seeing in your *British Bee Journal* that you ask for bee folk-lore from various counties, I have learned what I could from the cottagers, and find 'that bees will not stay unless they are on an oak board. They fly away, never to return, if after a death in their owner's family they are not draped with crape; and that a bee-sting after sundown is highly dangerous, probably ending in death.'—S. BUTLER, *Norwich, Jan. 30, 1882.*

'MODERN BEE-KEEPING' AND THE SKEP, CLOSE-ENDED FRAMES, WAX FOUNDATIONS.

It is to be hoped the B. B. K. A. will give some account of improved methods of bee-keeping with skeps in the new *Hand-book*, as in most cases cottagers, and many far above them in the social scale, will not use bar-frame hives at all. Would not it be better to show them how they might do better with their skeps than let them go on as they are? Improved skep management might be made a stepping-stone to the use of bar-frames in the future. And they, the cottagers, should be shown they should leave some combs with honey for the winter use of bees, for if you tell them how to take the honey and substitute syrup, they will do the former but neglect the latter, as they would look twice at the money before they would spend it on winter food.

What are the most approved methods of working skeps? Of course, I know it is not a question for advanced bee-keepers, but it will be many a day before Irish cottage bee-keepers can claim that title, so show them how to use the skep with the best advantage. If you advise them flat-topped skeps they would necessitate guide-comb' in some form, which few would take the trouble to use. The question is, how to fix supers on round-topped skeps, as they are the best for the bees. If skeps could be made round-topped inside and flat-topped outside, supers could be fixed on easily. What is the 'Grecian skep' like, and what is the peculiarity of any other foreign skep?

Close-ended frames.—As this method appears most natural to the bee, I would like to adopt it if the crushing of bees can be avoided with fair care. If the bees should come between the close ends, they should be brushed off, I suppose; but how, if they are in constant motion while moving the frames?†

I suppose if open-ended frames are used, much the same liability to crush the bees would take place if a number of strips of wood were used to be placed against the open ends, not between them. When manipulating these shutters could be singly, or all of them, removed. The inner hive side-wall would of course have to be removed altogether, except a top strip for the frame ends to rest on, but that should be moved a few inches further from the frame ends, though if left close it might be utilised for closing the shutters.

In your close-ended frame hive it might also be a good plan to have a similar piece of a strip, but certainly not quite close to the frame-end, for the frame-ends to rest on instead of the frame-tops, extending to the side of the box, which prevents you, I suppose, from getting your hand down between the frame-ends and the side of the box if you require to do so.

If I make an outer hive specially for close-ended frames, what space would be sufficient between frame-ends and hive-side?‡

The close ends seem superior in every way for comfort to the bees, and therefore increased benefit to the bee-keeper, and much easier of management, the cost in every way cheaper, and less of what you call 'advanced' knowledge required, less of those 'little niceties' that make up the education of very 'advanced' bee-keepers. I am an enthusiast, but not a mere temporary one, and have devoted myself, too much in fact, to a love of live stock and natural history, and will take any trouble to succeed in becoming an 'advanced' bee-keeper, but all have not perhaps the same natural aptitude for these pursuits, so show them the simplest method, compatible with moderate success, in the management of frame hives. All can't be 'advanced' bee-keepers, but many would be willing to be able to fairly manage bees, but don't frighten them by being very 'advanced,' which is easy to a limited few. Don't expect too much from the general run of bee-keepers. I am anxiously waiting for more on the 'Giotto' before I try to decide on the 'best hive.'

To strengthen, &c. wax foundation sheets, would it be a good plan to drive a few pieces of wire from top to bottom or side to side of frame, these to be at each side of the sheet, and the cells could be worked over it?*

What about a B.K.A. for Cork? One much wanted; south far behind north in this respect. I am one if started.—A CORK BEE-KEEPER.

LECTURE AT GUILDFORD.—An interesting lecture was given by H. Parson, Esq., of the Firs, at the Ward Street Hall on Thursday evening, Feb. 9. There was a large attendance. The chair was taken by A. F. Walbrook, Esq., Editor of the *Surrey Advertiser*. Mr. Walbrook never loses an opportunity of urging the advantages of the modern system of bee-culture, and in introducing Mr. Parson he was particularly happy in his observations. The lecture itself, we need scarcely say, was of the most valuable character, having been thoroughly and practically illustrated throughout. The lecturer was highly complimented at its conclusion by J. Smith, Esq., medical officer, and the Rev. Dr. Kincaid, of the Royal Grammar School, who observed that one of the examples of beneficence was that of a man who made two blades of grass grow where only one grew before, and with this they might compare the gathering of honey where none was gathered before, which the lecturer had not only told them could be done, but had told them how to do it in an able and entertaining manner.

LECTURE AT INVERURIE, ABERDEENSHIRE.—Mr. A. Cockburn, Honey Grove, Cairnie-by-Keith, gave a lecture here on the 16th Dec. on 'The Practical and profitable Management of Bees.' Mr. Tait (paper mills) presided in the absence, through indisposition, of the Rev. Dr. Davidson, Inverurie. The lecturer gave a full account of the management on the modern bar-frame system, and showed from his own experience how large an amount of money might be earned by crofters (farmers) and others in a county like Aberdeen. In the course of the lecture he explained the mode of using the best modern appliances, and was listened to very attentively. A hive of Mr. Cockburn's, which took the first prize at the last South Kensington Exhibition, was much admired.

LECTURE ON BEE-KEEPING.—A lecture on the 'Pleasure and Profit of Bee-keeping' was given in the Leigh Parochial School-rooms, near Tunbridge, on Tuesday evening, February 7th, by the Rev. D. A. Doudney, Rector of Ore, near Hastings. There was a large attendance, and much interest was manifested. The lecturer exhibited a modern frame-hive, with sections, &c., and fully explained the modern system of bee-keeping. The Rev. H. R. Collun, vicar of the parish, presided, and mentioned that there are at present very few bees kept in the parish, but that he hoped soon to hear of a large increase. Several persons remained after the lecture to examine the frame-hive more closely, and to elicit further information from the lecturer. Mr. Samuel Morley, M.P., who resides in the parish of Leigh, has given great encouragement to bee-keeping by offering a number of prizes to be competed for by the parishioners.

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* We know of no absolute necessity for guide-combs in flat-topped skeps or any other hives where combs are not intended to be moveable.—ED.

† With very moderate care not a bee need be crushed. By putting the bottom of the frame in hand against the top of the one in the hive, and sliding it down, not a bee *can* be crushed.—ED.

‡ Anything, from a quarter of an inch to two or three inches.—ED.

* If the flat-bottomed foundation be used, there will be no necessity for any of the troublesome shifts so often proposed. If firmly fixed at top and no more given than the bees can cover on both sides, there will be no difficulty.—ED.

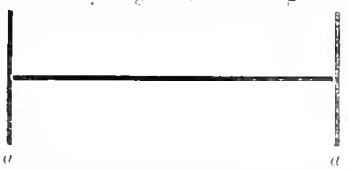
Echoes from the Hives.

Warwickshire.—'Through illness in the autumn, my hives were left to take care of themselves during the winter months. January 30th found them all well, crowded with bees, and each stock with about two frames of brood; quantities of young bees were hatched out, and in my opinion the queens have been laying all winter. Such seasons as the present I quite think chaff covering should be dispensed with, but ready for immediate use when the cold weather appears, for placing only over the brood-nest.'—A WARWICKSHIRE BEE-KEEPER.

Carlingford, Ireland.—Stand for Copyable Hive.—'I delight in your *Journal*, and I am busy making a first-class hive from your instructions, and I thank you very much for making them so easily understood. Could you give us any hints for safe stands for these large hives? I have sufferred greatly in the gales of this winter: three hives were overturned, and the combs shaken out of two of them, but I got them back again, and the bees seem well enough. These large hives present a great surface to the wind, and I think they ought to be as near the ground as possible.'—E. E. R.

[One piece of board of the length of the hive, and about nine inches wide, and two pieces halved across it,

after the manner of Abbott's simple stand, will be found very useful; or they might be nailed together, thus—



a a having a top-bearing surface of the full width of the hive, and coming just under the front and back.—ED.]

Kilkea, Carlow.—The Copyable Hive.—'I think at least three cottagers about me will adopt the bar-frame system this year—perhaps more. I have made two or three Copyable hives myself. It is an excellent hive. I have introduced two modifications, however: (*a*) By cutting the pieces of scantling which form the skeleton ten or twelve inches longer the hive is provided with legs. (*b*) I have made the floor-board to slide in and out with wedges fore and aft, to secure it tightly against bottom of hive.'

Dublin.—The Irish Association.—'I am delighted with the 'touch-up' you gave our Irish Bee-keepers' Association in your number of *Bee Journal* for February. There are a few *drones* holding the most important offices connected with it. Yet, notwithstanding all this, we are on the right side of the books with a balance of upwards of 18*l.* in our favour.'

County Kildare.—The Irish Bee-keepers' Association.—'I was very glad to see your comments upon the Irish Bee-keepers' Association, of which I have become a member. It is a great pity that so promising a Society (numbering over 76 members) should be inactive.'

Canning Place, Passage West, County Cork.—Close-ended frames.—'As I am a fair amateur carpenter, and have my full time on my hands, I shall make my own hives, especially as you have made it so plain and easy in the *B. B. J.* I am inclined for close-ended frames. Please say in *Journal* what would be the best space to allow between the frame ends and the side of the box, supposing I *make* the boxes to hold the frames. I am trying to get a few to join to start a B. K. A. for Cork, but it is hard to get bee-keepers to make a move out of the beaten track.'—J. C. S.

[The distance between the close-ended frames and the hive sides may be anything between a quarter of an inch and several inches. Make the ends fit closely against each other, and there will be practically no propolising.—ED.]

102 *High Street, Dalbeattie.*—'I always long for the coming of the *Bee Journal;* the more I read it the more I think it is improving every month in its hints to bee-keepers. Any one who cannot manage bees after reading it must be a blockhead, for I find everything that you lay down to be done is just the very thing that ought to be done, only in different parts of the country where spring is earlier or later timeliness has to be studied. We are about three weeks later with crocuses and other early flowers than you. Although there have been two or three days with a little sunshine which tempted the bees out many have died around this district from want of food, not having been fed in autumn. I was asked last night by a farm-servant, who is a bee-keeper, when I let my bees out. I told him they were never closed in. He stared and said he always closed them in the autumn, and that it was the custom of all his neighbours. He also said he gave them sugar syrup a while ago and closed the mouth again. I recommended the *Journal* to him. There is a great change in bee-keeping here within these few years. Most bee-keepers have frame-hives, or are asking about them. I am often asked why I have no straw hives in my apiary. I reply by saying I would not keep them in a straw skep if I had five minutes to take them out.'—JOHN THOMSON.

Queries and Replies.

QUERY No. 450.—*Close-ended Frames.*—I have been using your Standard hives, but I am thinking of making some on your new Giotto pattern, which pleases me particularly. But I want some more information:—

1. Does the propolising of frame-ends together prove a serious annoyance, practically?

2. What has been your experience on this point?

3. You speak of rubbing with tallow to prevent this; would not black-lead or French chalk answer, and be less unpleasant in a bee-hive?

4. Could you describe or illustrate the best form of guage-block on which to nail together these Giotto frames, in which accuracy is so important?

5. How is extracting to be managed? When put into the extractor all combs, or parts of them, which are not built out to the full width of the frame-ends, will have no support, as the ends will keep them from lying against the iron-work. They will thus be very liable to break when revolved. What is the remedy for this? I ask more especially with regard to my own extractor—one of Steele's—which takes in your Standard frames end down.—SCOVANDYKE.

REPLY TO QUERIES No. 450.—No. 1. When the frames are pressed close together by a strutting-piece of wood, reaching from the back of the hive to the back-board or dummy, in rear of the frames, there is, practically, no opportunity for propolising, and there is no inconvenience.

2. Our experience is directly in favour of the close-ended frames; they are easily separable, and can be slid backward and forward on the runners with the greatest ease, since the bees do not propolise these at all.

3. A firm grease is the best because propolis will not adhere to it.

4. No frame-block is necessary, the parts all being marked. The top bars fit into the square notches in top of ends, and the bottom bars being of right length, the frames 'come together' all of one size, and can easily be racked so as to present a smooth inside surface, which with close-fitting joints are the important necessities.

5. The top and bottom bars are of the width of the combs, and the wire frame of the extractor simply requires to be of a size to come between the wide ends, and then the combs will lie flat upon the wire-work, and the top and bottom bars will lie upon it also.—Ed.

Query No. 451.—*The Observatory Hive.*—Could you say in next number of *B. B. J.* what thickness of plate-glass is best for Observatory hive, and what is the approximate cost per foot superficial?—E. W. E., *Newton Rectory, Tetbury, Feb. 8th.*

Reply to Query No. 451.—It is not material, provided it is of sufficient strength to bear the weight of the frames and the lateral pressure which may be brought against it in transit to or from shows. If not intended to be carried about, 32-ounce window-glass will answer the purpose, and being cheap by comparison, double walls might be afforded, with dead air between, to prepare for which the grooves for glass would have to be widened towards the outside; and when the glasses are in position, slips of wood thrust between, at their ends, will tighten them, and slips along the top, resting on the end slips will finish the work. Price of plate glass is from 1*s.* to 3*s.* per foot, according to size and thickness.—Ed.

Query No. 452.—1. I have a hive, one foot square inside, made from directions in a book called *Modern Bee-Keeping*, by Robinson, which appeared some eighteen months ago. The frames are all firmly fixed, and have been so since the week the bees were put in. I intend to transfer them into an Irish hive, but want to get a few pounds of super honey early in the season. Can I do this with such a hive? and if so, before swarming or after?

2. How and when would you transfer them to an Irish hive, the frames being fixed? The size of the frames is 11 in. by 8.

3. When should bees in skeps be put into Irish hives? Before or after swarming?—B. B. W., *Redditch.*

Reply to Query No. 452.—Directly the 'book of promises' alluded to came under our notice we cautioned our readers against its specious teaching, foreseeing the evils entailed, and hoping to be spared the labour their correction would surely cause us; but we were too late, the newspaper press had made the world resound with the 'pleasures and profits' *promised*, and the book found its way into many hands. Supposing the present hive to be healthy, we would wait until it became crowded with bees, and then pulling off the bottom rails of the frames we would deepen the hive by placing under it an eke, about four inches in depth. This will set the bees comb-building, and when honey is abundant, a crate of sections on the top would have a fair chance of being filled before swarming.

2. The frames being fixed, we would wrench the hive to pieces and cut out the combs *seriatim*, transferring them in the usual way.

3. Twenty-one days after swarming is the best time, because there will then be very little brood in the hive. But instead of transferring the combs it will be better, and pay better, to fill the frames with comb-foundation, and appropriate the honey that is in the former, and then boiling them up for wax. New straight combs will then be secured, and the chances of disease lessened.—Ed.

Queries No. 453.—1. *Guides for Supers.*—Last year I placed a super on a Pettigrew straw skep, the bees began to build combs from top and bottom at same time, meeting in the centre. The combs from the bottom ran in the opposite direction from those built from top, spoiling the appearance of the box. How may this be prevented? The combs from the bottom were built up through the hole.

2. *Foundation-twisting.*—I filled frames with foundation-comb, but found in a few days that they were all curved and twisted.

3. *Discouraging Bees.*—I have been told that it disheartens the bees to take away a box of honey from them in the middle of the season. Is this so?

4. *Hindering Swarming.*—When you do not wish bees to swarm is it advisable to turn the mouth towards the north when you take your bees to the country?

5. *Covers for Skeps.*—I made a few covers for hives, as directed in Cheshire's *Practical Bee-Keeping*, with felt, 2 ft. 8 in. broad, but found them too small for large hives. Is there any other way?—Ignorance.

Reply to Queries No. 453.—1. Straight comb would have been ensured had guides been fixed to the top of the super, and if of glass, an easy way made by which the bees could reach them. Bees cannot readily climb or hold on to glass, and if no ladder be supplied to them they build one for themselves if they require the super for storing.

2. More frames of foundation were given to the bees than they could cover evenly on both sides, consequently the weight of bees not being evenly distributed, the foundation bent outward from the weight.

3. We have never found it to have that effect, and do not believe it has. The idea, however, often receives colour from the fact that too frequently the honey is not removed until the season is nearly over, and the bees are unable to gather so largely as formerly.

4. We have little faith in the principle unless they are thoroughly shaded from the sun-shine.

5. Cones of larger size than those described cannot well be made without patching; but why use felt, which is so liable to collapse with the heat of the sun, and is so dirty and likely to become ragged?—Ed.

Query No. 454. *Bees in a Tree.*—I am anxious to utilise a swarm of bees which have been for years in the hollow bole of an oak-tree. They have two entrances, two feet apart, and twelve feet from the ground, just under the branches. If a frame-hive with a hole cut in the back, and joined by a tube to the hole in the tree, compelling the bees to work through the hive, filled with comb foundation and a frame of excluder zinc placed at the front but inside the hive, preventing the escape of the queen, and being a large drone-trap, would it cause her or the swarm to take possession of the hive? or can you suggest any plan to secure it, as it is an isolated place? If so, you will greatly oblige yours faithfully, Robert Thorpe, *Evedon.*

Reply to Query No. 454.—If one of the openings were closed, and an Abbott's drone-trap securely fixed to the other, the swarm would be prevented flying away, and would be found hanging to it around the queen, that would be captured in attempting to fly abroad. The trap would require daily attention, to clear it of the drones that would accumulate in their season, otherwise there would be no trouble or difficulty. Another plan, quite as useful, would be to make the stock a feeder to the home apiary. When the bees show signs of being crowded, or it is otherwise known that they are populous, if a hive with some combs of brood in it were fixed in front of the entrance, so that the bees could pass through it, they would take possession of the combs and brood, and could be carried away at night with ease and set in the bee-garden at home. If near swarming, and there was little empty comb in the tree for the queen to lay in, she would be very likely to enter the hive, and might be taken away with it. This kind of operation might be repeated at intervals.—Ed.

*** *We exceedingly regret that, though we have given four pages extra this month, we have, in consequence of the pressure on our columns, been obliged to defer to our next issue the appearance of the following communications:*—The report of the Annual Meeting of the Hertfordshire B. K. A.; lecture at Innellan; letters from J. W. Nelson; South Ayrshire; G. D. Haviland; Alfred Davis; Rev. G. Raynor; G. Stocks; W. H. J.; Osbert Ward; E. A. Brown; G. W. P.; J. Symons, &c.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. N., *Ulverstone.*—It is not easy to divine the cause of bees dying. Only a three-pint swarm in July—probably an after-swarm, and the queen lost in August after they had built the hive full of combs. A Ligurian queen given to them in autumn, and as soon as brood was seen it was time to close them up for winter. There had thus been no breeding from July; they had worked hard, and were few in number, and probably died of cold and old age.

We are requested to state that the lecture by W. H. Harris, Esq., reported last month, was delivered at the Mechanics' Institute at Slough, near Windsor.

T. Cosway.—The poem 'The Queen and the Hive' came duly to hand, but her majesty is too sadly crippled in her feet to be worthy of introduction to our swarm of readers. We give a stanza by way of example:—

> 'And what kingdom can rival thine
> In industry, commerce, or wealth?
> Or where sanitation so complete
> For the preservation of health?'

J. L. S., *Kent Gardens.—Dysenteric Symptoms.*—Excreta on the alighting-board are undoubtedly a sign that the bees are not healthy, but so long as the inside of the hive remains unsoiled, not much mischief will have taken place. Soiling the entrance is often caused through bees alighting before the excrement has fallen away from them, when it clings to the hive surface and the bees creep away. After undue confinement bees are often thus ailing, but a purifying flight restores them to health. Keep the entrance clean, and if the disorder continues give them a little salicylised syrup daily until fine weather permits their daily flight.

Removing Bees from a Blind Window.—The bees being between the double boarding on the framework of the window, it will be necessary to smoke them and remove the boards from one side or the other to lay bare their nest. We would, however, defer the operation till swarming time, and then, having made an artificial swarm from a skep (driving all the bees), would put the hive of combs and brood immediately above the exposed bee-nest so that the bees could readily run into it. We would then smoke the bees, beginning at the lower part of the bee-nest, and drive them upwards from the combs, which we would cut out and put in a place of safety. When all the combs were cut out we would take them home, fit those containing brood into frames, put them into a hive, add as many frames filled with comb foundation as would be required to form a fair-sized home, and would let the artificial swarm have possession. In the meantime, the bees recently dispossessed will have taken possession of the hive of combs placed so near their home, and at night, when all are within, they may be carried away in safety. This method of dealing with vagrant stocks is exceedingly simple, and saves an immense deal of fussing and labour.

H. A. O., *Kirton Holme.*—At this time of the year we uncap honey and leave it for the bees to take to stimulate breeding. In the summer we uncap and take all we can get. Bees will readily work in sections at the top, all things being congenial, as often explained; but as they will more often take to them in the body of the hive than above the brood-nest, the sections are more likely to be started easily in the former position. The best time to raise them to the top is when the bees are working well upon them, but they can be almost compelled to take to them at any time in summer if the directions as to brood in sections mentioned last month be adopted.

C. F. W., *Fulham.*—Your suggestion as to uses of honey shall have careful attention. Many thanks.

PURE EXTRACTED HONEY, 1*s.* 3*d.* per lb. in Glass Jars, jars included. Address Abbott Bros., Fairlawn, Southall.

THE LECTURE.—A few Copies on hand. Price 2*s.* 2*d.* post free. Letters to Editor.

DIAGRAMS FOR LECTURES, by the British Bee-Keepers' Association, with descriptive Pamphlet, 8*s.*, free on rail. Abbott Bros., Southall, Middlesex.

NORFOLK & SUFFOLK.

BEE-KEEPERS supplied with BEE APPLIANCES by J. J. Rice, Wensum Street, Tombland, Norwich. fo. 40

GREAT REDUCTION IN HIVES.

SELLING OFF! NORTHERN STANDARD, 27*s.* 6*d.* to 23*s.* IMPROVED DITTO, 28*s.* to 22*s.* PRACTICAL DITTO, 18*s.* 6*d.* to 15*s.* COTTAGERS, 8*s.* to 5*s.* 6*d.* LITTLE WONDERS, 10*s.* Several Second-hand. Apply at once for Catalogue. Only a few of each left. Address Mr. Lister, 10 Caprera Terrace, North Road, Plymouth. fo. 37

COMB FOUNDATION.

W. HOLLANDS begs to intimate that having purchased a Machine for the Manufacture of very THIN FLAT-BOTTOMED FOUNDATION for SUPERS, he is now prepared to supply it in any quantity at 3*s.* per lb.; THICK FOUNDATION, natural shaped base, for BROOD FRAMES, 2*s.* 6*d.* per lb., neatly packed and delivered on Rail for Cash with order. Send Two Stamps for Samples to W. Hollands, Harrison Rise, Croydon. fo. 38

Established 1874.

SUSSEX HIVE MANUFACTORY.

HIVES of the best selected Pine, 12*s.* 6*d.* to 15*s.* 6*d.* Acknowledged to be the simplest in working, the best made, and the most successful of any in the market. SUSSEX SUPERS, of best Pine, fitted with Twenty-one 2-lb. Sections, glued at corners, Wax-sheet to each, Window and hinged Shutter back and front, 8*s.* each, packed. A very superior article, will last a lifetime. May be used for Flat-topped Straw Skeps. Nearly 800 already sold. SUSSEX SUPERS, comprising Twenty-one 1-lb. Sections, glued at corners, Wax-sheet to each, Window and Shutter back and front, 5*s.* 6*d.* each, packed. 1-lb. SECTIONS, 5*s.* 6*d.* per 100. 2-lb. ditto, 6*s.* 6*d.* per 100. BEE VEILS, 2*s.* Prime FIRST SWARMS, 21*s.* each. Catalogue, Stamp. Address Alfred Rusbridge, Sussex Hive Manufactory, Sidlesham, near Chichester. fo. 35

LIGURIAN BEES.

BY THE POUND.

DURING, and after May, I shall be prepared to supply BEES of the above superior race by the Pound. This system will be found much more satisfactory than that of purchasing Swarms, as the buyer will know what to expect, and what he gets.

The Queens are home-bred, and having special advantages, I am enabled to guarantee them pure, and equal, if not superior, to those imported, it being universally admitted that Queens raised at home are more hardy and prolific, and produce the best workers.

To those unacquainted with the probable weight of an average Swarm, I suggest three pounds (and a Queen) as a serviceable lot, although, of course, more would give better results.

Prices:—During May, per lb., 10*s.*; Queen extra, 10*s.* After May, 7*s.* 6*d.*; Queen, 7*s.* 6*d.* Packing, 2*s.* in all cases.

Terms: Cash with Orders, which will be executed in rotation.

POST-OFFICE ORDERS PAYABLE AT ROTTINGDEAN.

S. SIMMINS, The Apiaries, Rottingdean, Brighton.

fo. 24

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To meet the wants of Subscribers who require a cheap mode of advertising their wants, we have opened an Advertising Column, for non-trading Subscribers only, wherein they may make their wants or wishes known at the rate of One Penny for every six words, or part of six words, but no advertisement must contain more than thirty-six words.

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FOR SALE.—Vol. III. of *British Bee Journal*, complete. Unbound, 4*s*.

LANGSTROTH on 'The Hive and Honey Bee.' 9*s*. Free.

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WANTED, Abbott's 'Little Wonder,' largest size; Bee Requisites; Swarm of Ligurians in exchange for Prize and Prize-bred Rabbits, any variety; or Long-distance Belgian Voyageur Pigeons (Squeakers). Address JOHN BREWER, jun., Teynham, near Sittingbourne, Kent. fo. 36

WANTED, Small Capital, or Person with same, to join me in bringing out an entirely New and Useful Article, that will be in great demand by all Bee-keepers. Address the Inventor, E. HALL, Sheering, Harlow. fo. 22

NEIGHBOUR'S APIARY, 1*s*. Cheshire—Practical Bee-keeping—2*s*. 6*d*., post free. Address HALL, Sheering, Harlow. fo. 22

FOR SALE.—Fifty 1-lb. Sections, and Eighty 2-lb. Sections—8*s*. the lot. Also Dipping-can for making Wax Foundation Sheets, New, 7*s*. 6*d*. Address R. RANGER, Ray Mills, Maidenhead. fo. 31

FOR SALE.—Second-hand, in good order, Abbott's Little Wonder, price 10*s*. Address Miss HIGGENS, Wareside, Ware, Herts. fo. 33

FOR SALE.—Eight Stocks of Hybrid Ligurian Bees in Round and Square Frame Hives. Apply to WILLIAM SMITH, Strensall, York.

FOR SALE.—A few Good Stocks of Hybrids in very Strong Taper-frame Hives. 2*l*. each, packed on Midland Rail. Address H. J. FUST, Hill Cottage, Falfield, Gloucestershire. fo. 37

HONEY in the Comb for Sale—1-lb. Sections. Address DAVID LING, Rochford.

FOR SALE (Cheap).—Circular Saw, Crank, Table, Speed Wheel, &c., complete, 30*s*. Address DAVID LING, Rochford. fo. 39

'FIELD Naturalist's Handbook,' 3*s*. 6*d*. 'Year by Seaside,' 'Duncan's Moths,' 'Butterflies,' 3*s*. each. 'Gleanings of Nature,' 4*s*. 'Nolan's Poultry Book,' 5*s*. (scarce). Or exchange Bee Books, Journals, Bee Furniture. Address J. C. SMITH, Canning Place, Passage West, Cork. fo. 34

NOW Ready, price 6*d*., per post, seven stamps, 'The Bee-keepers' Almanac.' Should be in the hands of all Busy Bee-keepers. Orders to The MANAGER, Great Hampshire Bee Farm, King's Somborne, Stockbridge, Hants. fo. 15

DR. PINE'S WOVEN WIRE VEILS

First Prize for best Bee Dress, at South Kensington, 1879.

Price 2*s*. 9*d*. post free. Strips of Wire Cloth, for making them, 1*s*. 8*d*. each, post free. Letters to Editor. fo. 15

DR. PINE'S BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

Price 1s. 6d. per bottle, or Post-free for 1s. 8d.

AGENT—

MR. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall. fo. 15

NOTICE.

THE GREAT HAMPSHIRE BEE FARM.

A SAMPLE HIVE can be seen at 5 Agar Street, Strand, W.C., where Orders can be given.

An experienced Expert will be sent when required to lay out work or arrange Apiaries.

Terms, 10*s*. 6*d*. a-day, with travelling expenses. Orders should be addressed, The MANAGER, Great Hampshire Bee Farm, King's Somborne, Stockbridge, Hants. fo. 15

ARABIS ALPINUS, the best early Honey-yielding Flower, blooms from March to July, or all the year round by successive plantings. It has been blooming with us from March to February. Price, 1*s*. 6*d*. per hundred plants; 10*s*. 6*d*. per thousand; very hardy; sure to grow, and increases rapidly. Plant one foot apart every way. ABBOTT BROS., Southall, Middlesex.

LIMNANTHES DOUGLASII PLANTS, 1*s*. 6*d*. per 100. Plant now to fill the honeyless interval between Fruit-blossoms and White Clover. 10*s*. per 1000. Certain to grow, and very hardy.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 108. Vol. IX.] APRIL, 1882. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

We think it may safely be recorded that the winter, which may now be considered 'past,' has been the mildest and kindest ever known in this country, for during the whole of it there has scarcely been snow enough to make a snowball with, or ice strong enough to bear a duck; and there has been a singular reticence of rain. Up to the 21st of March the whole of that month had been beautifully fine and open, and birds and bees were breeding merrily, while the gardens and orchards assuming spring attire, cheated the bees, and not a few bee-keepers, into the belief that it was May instead of March, and that the time had arrived for swarming, and all the other operations incidental to that month of merrie and happy associations. But on the 21st,—the equinoxial day, which popular belief invests with the power of determining the weather of the three months next ensuing, —there came a change, which narrowed and lengthened the faces of the popular believers, and must have filled their minds with despair.

Hereabouts—nine miles west of the metropolis—the weather of the 21st was of the most miserable: it rained and blew, and snowed and snew, the livelong day, and at the 'witching hour,' mid-day, when the weather-clerk's determination is supposed to be exhibited, the wind, and the rain, and the snow, and the sleet, had a lively struggle for supremacy, and it was bitterly cold. Since then the weather has been changeable, but generally cold, and the bees very much confined to their hives. Under these circumstances, it will not be surprising if many hives suffer considerably, especially where they have been highly stimulated for being heavily charged with brood, which the bees could easily attend to while the weather was warm and genial, but which under the altered circumstances they may be obliged to neglect, much of it may become chilled, and may be more or less consumed, or thrown out of the hive.

At the first appearance of the change in the weather our first care was to narrow the entrances of all hives that had been enlarged, and we hope that our readers did likewise. We have heard of a stock at Northiam, on which a super, partly filled last year, and left on all winter that the bees might empty it, having taken possession of it again, and that they were 'filling it very fast' (on the 17th ult.); but doubtless the weather since has altered their arrangements. There has been, however, such a splendid time for the bees to recoup their strength, that with ordinary care there will be no spring dwindling, because the hives are now stocked chiefly with young bees, and these will be able to undergo privation that would destroy those more aged.

Our supply of early flowers has been of great advantage to our bees, and has entirely dispensed with the necessity for artificial pollen, which, with so much natural pollen at hand, they have resolutely refused to touch. We have this year become acquainted with an early plant, whose pollen-producing qualities cannot be too highly spoken of. It has been in blossom ever since Christmas, and thronged with bees on every possible occasion. After many inquiries we have been told it is a species of hellebore, often called 'the wild Christmas rose;' we have only about half-a-dozen plants, but wish they were as many hundreds. We have introduced a dozen flowering almond-trees into our apiary, and though this is their first year, the bees have found them valuable. The crocuses have done good service again, but are now all over, and the palm-willow has been abundantly useful, and is so still. Arabis is flowering profusely, and the red ribes, or flowering currant, is in full. Peaches and nectarines are very full; plums are a picture, and pears will follow immediately; and gooseberries and currants but add to the profusion.

Amongst trees of larger growth, the elms and oaks are becoming cloudy and dense with blossom and bud; the ash and the horse-chestnut are green, and the whole face of nature gives promise of early abundance,

Managing an Apiary.—This subject was minutely dealt with at the commencement of the present volume, and will in a few days be republished in the form of leaflets, which can be had for a few halfpence, so that in the present crowded state of our columns, we think its reproduction unnecessary, as it would keep back other matters of interest.

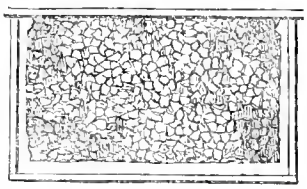
USEFUL HINTS.

The early state of nature, and the opportunities the bees have had for increasing their numbers, will doubtless cause early swarming, and it behoves every bee-keeper to be ready for all such possibilities. There are, however, very many makeshift people who will scarcely think of providing for their swarms until they see them hanging on trees or bushes, and then they huddle them into anything at hand anyhow, and often do not trouble further about them until they want the honey from them. A very little trouble in advance would prevent a great deal later on, and we hope a word to the 'unwise' will be sufficient for them.

Beginners in Bee-keeping.—There are so many who will begin bee-keeping this year, that at the risk of seeming tedious we feel it incumbent on us to repeat some of the cautions given in previous years. Our advice to beginners is never to purchase stocks of bees, particularly if they have to be sent a distance by rail, for railway people have a chronic habit of smashing everything that is breakable; and we know of nothing more disheartening to a beginner than to have his first stock delivered to him with the combs in a heap, the honey running out of the hive, and hundreds of the bees, and perhaps the queen, drowned or crushed amongst the combs. Another reason for not buying stocks is that so few people who have good ones are willing to part with them; and there is a probability that though stocks may not be unhealthy when sold, the effect of a journey may induce disease through drought and over-heating.

Packing Swarms.—Swarms travel best in skeps or boxes in which there is plenty of ventilation above and below. Flat-topped skeps with large feed-hole in centre covered with perforated zinc, and open strainer cloth tied over the bottom, do well if sent inverted and with two strips of wood across the crown to keep it off the floor, and render the feed-hole ventilation effective. Wooden boxes should be similarly arranged. Dome-shaped or sugar-loaf skeps are dangerous sometimes, the jolting in transit causing the bees to fall in a heap over the crown-hole ventilators and die of suffocation. *A swarm should never more than one third fill the box or skep they are sent away in.*

Getting ready for Swarms.—Whether swarms are expected by train or otherwise, except they be sent in hives already prepared, the hives they are to be put into should be ready to receive them so that no time may be lost after their delivery. We need scarcely reassert our opinion that only moveable comb hives should be used in bee-keeping; but as there will be those who insist on using skeps, we strongly advise that they fit them up with comb-foundation to at least half the depth of the hive. If the hives could be conveniently parted with a division-board, so that the bees could be crowded to as many sheets of foundation as they could well cover, we would advise that they be given of nearly full depth, but this advantage is lost in skeps, and hence they must only be half depth, unless the swarm be strong enough to fill the whole hive. In fixing foundation to skeps it is only necessary to fasten it between two strips of wood of proper length, and tie them with wire to the crown of the hive, so that the sheets hang a trifle less than an inch and a half apart. Frame-hivists will fix their foundation in the usual way—tightly in the groove or split in the top bar, and clear of the sides and bottom, so that slight stretching may not cause bulging or 'sagging.' There are several kinds of foundation that will not bear to be more than a few inches deep, and of these the bee-keeper must be on his guard.



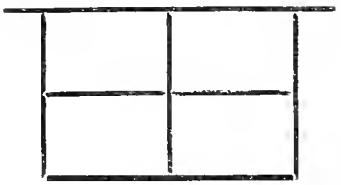
Artificial Swarming.—Notwithstanding the check of the 21st ult. and the cold which has continued more or less since, it is almost certain that many stocks will be in swarming condition during the present month; and we would advise that in making artificial swarms the parent stocks be not too much depopulated. Directions for making swarms, and almost all the every-day operations of the apiary, will be found in our halfpenny Leaflets, so it will not be necessary to repeat them here.

Supering.—When the hives are full of bees, the honey abundant, and the weather fine, supers may be put on with reasonable hope that they will be filled.

Supering Swarms.—By the aid of foundation swarms are enabled to fill their hives in a week, or little more, and having had no wax to secrete for the formation of comb, they store the honey direct in the newly-made cells, and if space for breeding be not given they will send out maiden swarms. The honey extractor will relieve the combs of the honey, and give the necessary space in the brood nest; but instead of a swarm requiring, as of yore, a

whole season to establish itself, it will be ready for supering in a fortnight. 'Supering' now implies either mode of obtaining surplus comb-honey—at back, sides, or top of brood nest.

Frames and Sections.—We have previously advised that some of the frames in the brood-nest of a hive should be fitted with sections to be filled with brood, so that they might be put into supers to attract bees to them, and cause them to take possession and work there; and now we recommend the principle on somewhat different grounds. A frame fitted with four sections will not lose much of its comb-space, or, at any rate, the loss will not be great where it is most valuable, viz., in the centre, and



hence will not be particularly detrimental to the hive. Now in most instances frames of comb have large proportions of their upper parts filled with honey, and the lower with brood, as will on all sides be admitted. It has also been proved that if the upper and lower parts of such combs be made to change places the bees will at once remove the honey from the then lower part of the frames, and put it—where?—not in the upper, because that is already charged with brood, but in the supers, if they be timely and properly arranged. This idea opens out a new feature in the way of securing comb-honey, which we believe will be valuable.

THE BLIGH COMPETITION.

There appears to be an idea abroad that the Bligh competition is intended for cottagers only, but we beg to say, and we hope all the committees of associations will understand it so, that only the most skilled experts are invited to compete. The hives will have to be placed in cottagers' gardens, for the sake of publicity, and that cottagers themselves may see how, with the simplest appliances, bees may be made to yield a good profit when properly understood and cultivated; but beyond thus learning a series of lessons, and carefully watching the proceedings, a cottager can take no active part except he be himself a skilled expert and a competitor. It is hoped that the best bee-keepers of the day will enter the lists, not necessarily for the sake of winning prizes, but to show the truth of the principles advocated by all associations 'as a means of bettering the condition of cottagers and agricultural labourers.' The idea is a grand one, and ought to be extensively patronised.

There is a point in rule 6 which we hope will be enlarged upon by the Committee. It says, 'All expenses incurred after the commencement of the competition must be defrayed out of the original capital of 2*l*.' Can it be contemplated that half of the sum is to be kept in hand to buy hives, &c., for the swarms that come forth? Rule 3 says that only two hives shall be set up at starting, but that they may be increased to any extent; but how is it to be done if no more capital is to be employed? We hope in the interest of the competition this important matter will be clearly explained; for the keeping of swarms is one of the greatest sources of profit to a first-class bee-keeper.

THE STANDARD FRAME.

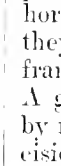
After a long sitting, during which much correspondence was read, followed by a very interesting discussion, the committee appointed to determine on the Standard frame came on the 16th ult. to a unanimous conclusion; and the frame is to be,—13½ inches long and 8 inches high inside, and the top bar is to be ⅝ of an inch thick, the ends each ¼ of an inch thick, and the bottom bar ⅛ of an inch thick, making the total outside measurement, irrespective of the ears or ends of the top bar, 14 inches long by 8½ inches deep.

There was not much diversity of opinion as to the 'Woodbury' being about the right size, and an attempt was made to adopt the 4¼ × 4¼ one-pound section as the unit, and at the same time to retain the Woodbury frame; but after much contriving it was found that they would not work together comfortably. Six of the sections measure 12¾ × 8½, while the Woodbury frame averaged 13¼ × 8 inches, which 'wouldn't fit noways.' It was suggested that as there were so many Woodbury hives in existence, it would be a good plan to retain that size for the stock-frame, and make a special frame to hold the sections; but it was pointed out that the object of the meeting was to determine on a size for a Standard stock-frame, and that only. There appeared to be a kind of necessity for adopting as a standard something that was in general use, and if the Woodbury frame became the unit, the 4¼ × 4¼ section would have to be thrown aside. Then, if the Woodbury frame were adopted, whose so-called Woodbury was it to be? There are dozens of them (so called) in the market, not two of which are of equal size internally or externally, and by referring to Mr. Woodbury's own description, his will be found to be least nearly correct (as now accepted) according to

the dimensions of the hive as given by himself. The original was 14½ inches square and 9 inches deep, to hold a frame 13 inches long and 7¼ deep, inside measurement, thus losing an inch and a half in one direction, and an inch and three quarters in the other. Then came the question of the difficulty of finding so-called 9-inch boards that will hold out that width when dry, and this coupled with the fact that scarcely a hive amongst the many now made is of 9 inches depth, and that adopting it (the 9 inches) would make the great majority wrong, only added to the perplexity of the matter. It was, however, eventually agreed not to destroy the hive measurement in one direction, viz., the 14½ inches width, and this naturally made the frame to go within it 14 inches wide outside; and as it was thought boards could easily be found that will hold 8¾ or more when dry, it was determined that the frame should be 8½ deep outside, and, evidently, that the measurements should be easily understandable, it was determined that the top bar should be ⅞, the ends ¼, and the bottom bar ⅛ inch in thickness, thus making the inside dimensions of the frames 13½ × 8 inches inside, and capable of holding six sections 4½ × 4 inches, the equivalent of the 4¼ as nearly as it is possible to fix it in easy figures.

There will, doubtless, be a great outery against this arrangement because it will not employ the 4¼ sections, but there is really no reason why we should feel 'married' to that particular size. The 4¼ section is a standard in America because the Langstroth hive was in existence, and eight of them fit into the Langstroth frame, and new hive-makers have had the sense to make their frames of a size to receive it; but why should we English bee-keepers stultify ourselves by trying to make the Langstroth standard section fit the Woodbury standard hive when it is equally easy to obtain a Standard section for England that will fit the English Standard Woodbury?

During past years Messrs. Abbott Bros. have imported many thousands of sections of special size to suit the Woodbury hive, their 'Combination' system involving the use of sections in frames to a considerable extent; and although they have had to pay extra for them, there has been no difficulty in obtaining them, though the measurements were minutely fractional. But now that a plain Standard section 4½ inches wide and 4 high has been practically adopted, we have no hesitation in saying that our American cousins will only be too glad to make them as freely and as cheaply as they do their own. A radical decision on any subject can scarcely operate sweepingly at once, and during the present year that in regard to the frame and section will not have general effect, but in ensuing years it will be found an invaluable one. It might have been better if, in determining the size of the frame, the mode of distance keeping and the length of the top bar had also been determined; but these are 'burning' questions that will solve themselves, and may be safely left for the present. There is already an outery that the bottom rail of the frame is not strong enough, but it is of ample strength for ordinary combs, and when to be filled with sections it will only be necessary to put the tin dividers perpendicularly instead of horizontally, bending the ends, so that they shall be self-fixing to make the frame strong enough to bear anything. A great advantage, not at present seen by many, lies in the fact that by the decision arrived at no special section-frame will be necessary, because two ordinary frames put side by side will answer every purpose, and, indeed, will be more simple and efficacious because the sections will be more easily removeable from them.



HOW TO MAKE A FIRST-CLASS OBSERVATORY HIVE.

(*Continued from page* 179.)

Having made the hive, it will be well to provide it with a cover to protect it from injury and keep it warm; and there are many methods of doing this, either of which may be adopted.

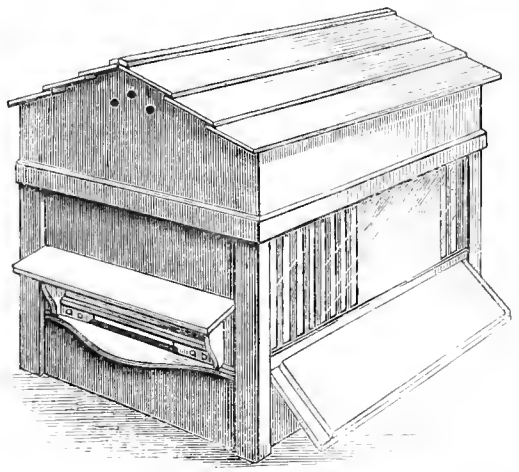
A quilted cover, made of two thicknesses of cloth with wadding between to draw over the hive, will answer exceedingly well, and may, if desired, be made highly ornamental. Another may be made in the form of a plain bottomless box to drop over the hive after the manner of a sewing-machine cover. This will be very easy to make, and will, doubtless, be adopted by many; but it will not be conveniently removeable, and will therefore not find favour with those to whom convenience is essential. Our recommendation is to enclose the hive with shutters (the best material for which will be pine) of a thickness, which, when lined with flannel, will bear out flush with the corner posts, where they can easily be fastened by ordinary brass buttons. This arrangement will dispense with the necessity for hinges, and permit of the entire removal of the shutters for cleaning, drying, or warming. The shutters should come up to exactly the same height as the side glasses, so that when in position the ends of the frames will just rest on their edges.

It will now appear why directions were given that holes should be punched in the frame-ends

(see note p. 117), and if corresponding ones be bored in the shutter edges pins may be passed into them, thus fixing the frames, and preventing disarrangement while on a journey to or from a show.

It will now only remain to make the top, which for indoor use could be in the form of a shallow box inverted. A narrow plinth may be put round its under edge to hide the joint, &c., and the whole may be stained, sized, and varnished. For the benefit of those who may be unacquainted with the fact, we remark that a few crystals of permanganate of potash dissolved in water (Condy's fluid) will make a good stain for imitating oak, which may be deepened as desired. If intended to stand in the weather, the hive should have a roof similar to any of those sent out with the best bar-frame hive, and should be well painted. We trust we have now given such information as will enable many of our readers to construct an observatory, which will be a source of instruction and amusement to them and to their neighbours.

We now give an illustration of the hive,



intended for outdoor use, as sent out by Messrs. Abbott Bros., in the construction of which slightly different plans are followed. Those who can make a hive in this style will not need any instructions in joinery from us, we, therefore, refrain from offering any. The framework is put together with mortise and tenon after the manner of the body of a kitchen table. The shutters, which are double and lined with cloth, shut in to a rebate. The frames are self-adjusting, having polished brass ends $\frac{1}{16}$ of an inch thick of Abbott's Standard shape. The exposed edges of glass are rounded and smoothed. The wood used is generally best pitch pine, which, after receiving several coats of copal varnish, is durable, and has a very handsome appearance. Legs may be added if desired.

On page 156 we find that the base pieces of the hive are to be screwed to the corner-posts with 'three two and a quarter inch screws,' which is an error. It should read two one and three quarter screws. The intention was that the screws should be put through the posts into the base boards without coming through to the outside.—Ed.

Notice.—We are requested to state that the Rev. Herbert R. Peel, Hon. Sec. of the B. B. K. A. has removed from Abbot's Hill, Hemel Hempstead, and now resides at Thornton Hall, Stony Stratford, Bucks.

BATH AND WELLS AGRICULTURAL SOCIETY.

Will you allow me to make known through your columns that arrangements are in course of progress for holding an Exhibition of Bees, Hives, and Bee-keeping Appliances, in connexion with the Annual Show of the Bath and West of England Agricultural Society, to be held at Cardiff on May 29, and following days? I trust this Exhibition, which has for its object the promotion of a better knowledge of bee-keeping in South Wales and the southern counties generally, will receive the hearty support of all bee-keepers and hive manufacturers, residing in the Southern and south-west counties of England. Prize lists and entry forms for this exhibition may be obtained upon application to the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts.—Herbert R. Peel, *Hon. Sec. British Bee-keepers' Association.*

A meeting of the Cardiff committee was held at the Town Hall on Saturday, under the presidency of the mayor (Mr. A. Thomas). There were also present Aldermen Evans and Taylor, Councillors Lougher and Stone, Messrs. J. S. Corbett, Edward David, R. Forrest, Christopher Williams, E. R. Lewis, Charles Tinker, R. Stratton, J. H. Harding, J. W. Dowson, S. W. Kelly, Edwin Corbett, Colonel Lindsay, and John Evans. A letter was read from the secretary of the British Bee-keepers' Association, offering to send down men to arrange for an exhibition of apiaries, bee-hives, bees, &c., and to offer premiums for local competitors who were owners of bees, &c., provided the Bath and West of England Society, or the local committee, would vote the sum of 30*l.* towards the expenses, and provide the necessary shedding. The committee resolved to offer the sum of 40*l.* to the Association, leaving them to provide their own shedding. The Association undertook to arrange for the entries and the award of prizes.

BRITISH BEE-KEEPERS' ASSOCIATION.

Monthly Meeting of the Committee held at 105 Jermyn Street on Wednesday, March 15; present, Mr. T. W. Cowan (in the chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, J. M. Hooker, H. Jonas, Rev. G. Raynor, Rev. F. T. Scott, D. Stewart, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel, Hon. Sec.

The minutes of the last Meeting were read, confirmed, and signed, the balance-sheet for the month ending Feb. 28 was also read showing a balance in hand of 70*l.* 1*s.* 5*d.* Letters were read from several County Associations in respect to the mode of carrying out the arrangements made for the management of the 'Economic Apiaries Competition.' The following County Associations promised to undertake the necessary supervision, and to carry out the arrangements on behalf of any of their members who might enter as competitors, viz. Brecknock-

shire, Cambridgeshire, Cornwall, Derbyshire, Devonshire, Dorsetshire, Essex, East of Scotland, Hertfordshire, Kent, Leicestershire, Lincolnshire, and Sussex.

The Secretaries of the Surrey and Wiltshire Associations replied to the effect that they could not undertake to carry out this competition.

The Counties of Berks and Bucks, and Suffolk, have the matter under consideration; no replies have been received from the Secretaries of the County Associations of Shropshire and Warwickshire.

The Secretary announced that he had received an application for a judge to act at one of the Affiliated County Shows, and that he should be glad if members of the Committee and other gentlemen who were competent to act in that capacity would kindly undertake these duties on behalf of County Associations in accordance with the privileges of affiliation.

A vote of thanks was accorded to the Rev. F. Scott for a donation of books to the Library.

In our report of the Annual General Meeting we omitted to give the names of the several gentlemen who were elected to serve on the Committee for the ensuing year. We append their names with the number of votes recorded for each candidate at the election, which took place by voting papers. Mr. T. W. Cowan, 220 votes; Rev. E. Bartrum, 211; Rev. G. Raynor, 205; Mr. J. M. Hooker, 199; Hon. and Rev. H. Bligh, 187; Mr. H. Jonas, 170; Mr. D. Stewart, 162; Capt. C. D. Campbell, 136; Rev. F. T. Scott, 136.

The unsuccessful candidates were Mr. H. G. Morris, 96; Rev. W. H. Benn, 76; and Mr. W. W. Kettlewell, 51 votes. In the event of there being a vacancy on the Committee during the current year, Mr. H. G. Morris will, in accordance with amended rule, be the duly elected candidate to fill such vacancy.

A meeting of the Special Committee appointed by the members of the British Bee-keepers' Association at the Annual General Meeting was held at the Langham Hotel, Portland Place, on Thursday, March 16; present, Mr. T. W. Cowan (in the chair), C. N. Abbott, F. Cheshire, J. M. Hooker, A. Neighbour, Rev. G. Raynor, Rev. F. T. Scott. Mr. J. G. Desborough was unavoidably absent.

After much discussion and the consideration of a large amount of correspondence it was unanimously resolved, 'That the outside dimensions of the Standard frame be 14 inches long by 8½ inches deep, the top bar ⅞ thick, bottom bar ⅝ thick, and the side bar ¼ thick, these dimensions not to refer to anything outside the rectangle.' Pattern Standard frames duly stamped and labelled may be obtained at 1s. each, upon application to the Assistant-Secretary, J. Huckle, King's Langley, Herts.

The next Conversazione will take place at 6 p.m. on Wednesday, April 12th, in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, at 105 Jermyn Street. Subject for discussion: 'A Bee-keeper's experience in Cyprus and Syria,' to be introduced by Mr. Thomas B. Blow, of Welwyn, Herts.

HERTFORDSHIRE ASSOCIATION.

Arrangements are in course of progress for holding the Annual Show of this Association at Hertford towards the close of the month of August. A local committee has been formed and a guarantee fund of 30*l.* is being provided to ensure the committee against any loss that may arise from adverse weather or otherwise.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

On Monday evening a meeting was held in the Grand Jury Room of the Derby Town Hall, for the purpose of setting on its feet the newly-formed Derbyshire Bee-keepers' Association. The chair was taken by Mr. F. Longdon, J.P., and there were present about thirty others. The Hon. Secretary then read a list of noblemen and gentlemen who had consented to act as president and vice-presidents of the Association. Mr. Copestake proposed that the thanks of the Association be given to his Grace the Duke of Devonshire for his kindness in accepting the post of president, and that he be duly elected to that office. Mr. J. Wibberley (Littleover) seconded the motion, which was carried unanimously.

Dr. Ogle next proposed a vote of thanks to, and the election of, the following vice-presidents, viz.:—The Bishop of Lichfield, Lord Edward Cavendish, Sir W. V. Harcourt, Sir Francis Burdett, the Archdeacon of Derby, Mr. T. W. Evans, M.P., Mr. Chandos-Pole, Rev. Nigel Gresley, Mr. W. Drury Lowe, Mr. Godfrey Meynell, Mr. H. C. Okeover, Mr. F. N. Smith, Mr. Rowland Smith, Lord Waterpark, Sir Henry Wilmot, M.P., Col. F. W. Newdigate, Sir John Alleyne, Mr. T. H. Oakes, Mr. W. Gladwyn Turbutt.

The meeting then went on to consider the adoption of the rules, which having been passed, Mr. W. Copestake was appointed treasurer, Mr. H. V. Edwards hon. sec., and T. H. Harrison auditor. The following gentlemen were appointed on the committee:—Dr. Ogle, Rev. J. Wadham (Weston-on-Trent), Rev. J. Hughes (Chellaston), and Messrs. F. Walker Cox, Biggs, Dean, Goodwin, John Longdon and Wibberley.

We are requested to add that the hon. sec. will be very glad to receive the co-operation of bee-keepers and gentlemen interested in the subject of apiculture in all parts of the county, as it is very essential, if the Association is to become a successful county institution, that all who can give any assistance should do so. It is proposed shortly to get a gentleman down for a lecturing tour in the county.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

We have been requested to state that the Annual General meeting of the above Association will take place on Thursday the 13th April inst. at one o'clock p.m. at the Grand Hotel, Colemore Row, Birmingham. J. N. Bower, Esq., of Knowle, the hon. sec., will be glad to give any information or receive subscriptions in respect of the Association.

SUSSEX BEE-KEEPERS' ASSOCIATION.

Two lectures were given on consecutive Mondays in February in the St. John's schoolrooms, Crowborough, near Tunbridge Wells, on 'Profitable Bee-keeping.' The lecturer, P. H. Phillips, Esq., a member of the British Bee-keepers' Association, and also of the Sussex Association, was introduced by the Rev. A. Smith, vicar of the parish. On the first night there was not a large attendance at the time the lecture should have begun. A small charge had been made for admittance. Taking his cue from the paper read by the Rev. H. Peel at a meeting of the parent Association, Mr. Phillips advised the pence to be refunded, and the men who had paid were asked to go out and to try and get an audience. In ten minutes there was a good attendance, and so deeply interested were those who listened and saw, that by a general request the lecturer was induced to promise a repetition of the lecture on the following Monday. The second evening saw, for a small village, quite a large audience, composed almost entirely of cottagers, some having come from a distance, although the night was rainy and windy.

On both occasions the remarks made were illustrated by diagrams and apparatus, many of which had been kindly lent for the occasion by T. W. Cowan, Esq. The natural history of the bee, and the internal economy of the bee-hive, were first briefly explained, and then the lecturer entered fully into the more humane and profitable system of bee-keeping. He had rescued bees from the sulphur-pits in various cottagers' gardens last autumn, and he now invited those cottagers to see his bees, strong and healthy, in bar-frame hives of home manufacture—

imilar to Abbott's Irish hives, but without broad-houldered frame-bars. He showed them the right size of straw-hive to use, one holding some three pecks, instead of the small dome-shaped ones of the district; how to super such hives, using a lid from an American cheese-box, packed with sectional supers. At intervals pauses were made during the lecture to give opportunities for questions, and the men were not slow to take advantage of such opportunities, and to ask many pertinent questions. Two, which were answered to the satisfaction of the questioners, were—How is a poor man to pay down 15s. for a swarm of bees and hive? and, How about the bees swarming when a man is at work all day, exeepting at his dinner hour? Advice was given to save 1s. a-week out of beer and tobacco-money up to swarming time if he was in earnest about keeping bees: and artificial swarming and large hives would be in nearly all cases a prevention to losing swarms. Artificial swarming was fully explained, and several cottagers were glad to accept an offer made to meet them in the swarming season at one of their cottages, and to drive a swarm from a hive ripe for the operation.

The bar-frame hive was shown together and in parts, and many availed themselves of the invitation to remain after the lecture, and to make notes and a more minute examination of the various articles useful in bee-keeping. The sectional supers and samples of foundation were much admired. The lecturer distributed a number of circulars, giving explanations of the benefits the county Association held forth to them, and the meeting terminated with a most hearty vote of thanks to Mr. Phillips, who, we believe, has sown seed which will bear good fruit during the present summer.

It is intended to hold the first general meeting of the members of the Sussex Bee-keepers' Association on Friday, 14th April, at 3 p.m., at the Friends' Meeting-house in Prince Albert Street, Brighton, which has been placed at the disposal of the Association gratuitously. The Right Hon. the Earl of Chichester, the President of the Association, will preside, and it is hoped that by having the meeting at Brighton a large number of bee-keepers will be able to attend. All bee-keepers and any interested in bee-keeping are invited to attend.

THOS. WM. COWAN, *Organizing Secretary.*

At a Conversazione of the Brighton and Sussex Natural History Society, held at the Royal Pavilion, Brighton, on 22nd March, a paper was read on 'Bees' by Mr. B. Lomas, C.E., who is on the committee of the Sussex Bee-keepers' Association.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

By some mischance the name of the Treasurer was wrongly reported in the February *Journal*. It should have been W. L. Emmerson, Esq., of Waltham. Members' names are almost daily added; there is a fair prospect of the committee being able to make a good appearance before the public at the Agricultural Society's Show in July. Edwin Ball, Esq., of Waltham, Melton Mowbray, is the Honorary Secretary of the Association. The advantages of membership are:—Free admission to all exhibitions and any bee tent: Free admission to all lectures and meetings; A sure market for honey; The opportunity of learning much more about bee-keeping; The privilege of competing for prizes at shows—entry free.

IRISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee of the Irish Bee-Keepers' Association was held on Feb. 11th, at which a letter, dated Dec. 2nd, 1881, from a gentleman holding an appointment in the Royal Dublin Society to a member of our Committee was read. In it the writer expressed a wish that we should send our Bee Tent to the Society's Spring Cattle Show, to be held on April 11th, and following days. The gentleman to whom this letter was addressed sent it, with one from himself, on Jan. 25th to our Hon. Treasurer, who produced both and a copy of his reply at the meeting mentioned above. A resolution was passed requesting Mr. J. K. Millner and myself to call at the Royal Dublin Society House, which we did, and the result is that free space for our Bee Tent at the show has been granted, and the Committee of the Royal Dublin Society passed a resolution authorising us to make a charge of 6*d.* for each person admitted to the Tent, the money taken to go to our funds. We intend to have in the Tent lectures on bee-keeping and the working of the bar-frame hive.

The first intelligence of the wish of the Royal Dublin Society that we should be represented at the Cattle Show reached me as stated above, and no time was lost in taking action in the matter.

I have gone fully into particulars lest you might be mistaken as to the cause of my (or our) sudden activity.—ROBERT SPROULE, *Richmond Road, Fairview, Co. Dublin, Mar.* 16, 1882.

SHOWS AND BEE TENT FIXTURES, 1882.

April 11 (Tuesday).—Irish Bee-keepers' Association Show at Dublin, in connexion with the Royal Dublin Society. R. Sproule, Hon. Sec.

May 24, 25.—Oxfordshire Agricultural Show at Witney.

May 29–June 2.—Bath and West of England Agricultural Show at Cardiff.

June 14, 15.—Cornwall Agricultural Show at Launceston.

June 28 (Wednesday).—Devon and Exeter Association at Barnstaple, N. Devon. W. N. Griffin, Hon. Sec.

June 29 (Thursday).—Norfolk and Norwich Association: Grand County Show at Norwich, in connexion with the Horticultural Society's Rose Show. Rev. J. Blake Humfrey, Hon. Sec.

July 5.—Wimbledon Horticultural Show.

July 10–14.—British Bee-keepers' at Royal Agricultural Society's Show at Reading. Mr. Huckle, King's Langley, Assistant Hon. Sec.

July 11 (Tuesday).—New Hampton, Middlesex, in connexion with the Flower Show. Hon. and Rev. H. Bligh, Hon. Sec.

July 25 (Tuesday).—Devon and Exeter at North Tawton, N. Devon. Rev. J. G. Danger and W. N. Griffin, Hon. Secs.

July 25–28 (Tuesday to Friday inclusive).—Caledonian Apiarian Association at Glasgow. R. J. Bennett, Hon. Sec.

July 26.—Dane Hill, near Uckfield, Horticultural Show.

July 26, 27.—Leicestershire County Bee-keepers' Association Show.

August 3–8 (Thursday to Tuesday inclusive, missing Sunday).—British Bee-keepers' Association at South Kensington.

August 5, 7.—Southampton Horticultural Show.

August 29.—Long Buckby Horticultural Show.

August 30, 31.—Great Yarmouth Horticultural Show.

August 31.—West Grinstead Horticultural Show.

September 7.—Horsham Horticultural Show.

Other fixtures are in course of arrangement.

HERTFORDSHIRE ASSOCIATION.

July 27.—Potter's Bar Horticultural Show.

PROFITS OF BEE TENTS.

I notice in your issue for March the report of the Annual General Meeting of the Essex Bee-keepers' Association, in which Mr. Aubrey is reported to have alluded to the statement made by the Rev. H. R. Peel in a paper recently read by him before the members of the

British Bee-keepers' Association, 'that in fine weather it was possible to make ten, fifteen, or twenty pounds with the Bee Tent.' Mr. Aubrey also stated that 'it did not seem possible to make 20*l.* at one show.' As these statistics were supplied to Mr. Peel by myself, I beg to append a list of shows where such amounts have been realised at various times, viz.:—

Edgbaston Horticultural Show	£31	1	3
Southampton Horticultural Show	21	3	6
Chislehurst Horticultural Show	11	5	9
Warwickshire Agricultural Show at Atherston .	10	15	9

Mr. Aubrey also refers to the small amount of profits made by the Bee Tent of the Hertfordshire Association.

I regret to say that we have no large shows held in Hertfordshire. The exhibitions at which our Bee Tent attends are chiefly local Cottage Garden Shows, and it seems hardly fair to make a comparison with a county where the opportunities of making profits are not so large. The charge for admission to the Bee Tent in Hertfordshire seldom exceeds threepence.

The Hertfordshire Bee Tent was purchased at the commencement of 1880, costing 20*l.* Towards this amount we received 13*l.* 8*s.* 6*d.* in donations from the members, and the profits for that year amounted to 11*l.* 3*s.* 6*d.*, leaving a balance in favour of the Association of 4*l.* 12*s.* The Hertfordshire Association's profits derived from the Bee Tent were nearly double (in proportion) to that of the Essex Association in 1881, the receipts of the former being 21*l.* 11*s.* 8*d.*, with a profit of 5*l.* 19*s.* 6*d.*, whilst the Essex Association, with an income of 43*l.* 15*s.* 6*d.*, only realised as profits the sum of 6*l.* 16*s.* 2½*d.*

It may interest your readers to know (especially those engaged in the formation of County Associations) that the profits derived from the Bee Tent of the Warwickshire Association during the year 1880 amounted to 33*l.* 3*s.* 6*d.*—J. Huckle, *Assistant Sec. to the British and Hertfordshire Bee-keepers' Associations, March* 23.

A WORD FOR SOMERSET.

One of the best ways of making a good start in Somerset would be to hold a Bee and Honey Show at one of the Floral Exhibitions to be held in Bath this year. This charming city is easily reached from various parts of Somerset, Wilts, Gloucestershire, and Dorset, and a good show is certain. Will our energetic and enthusiastic Honorary Secretary please to talk to the central Committee about it, and arrange to send the Bee-Tent and expert? It would be a novelty at Bath, and the residents like novelties; so it would be pretty certain to pay well. There would, without doubt, be a splendid sale for honey if it was put up attractively and in convenient lots. The Secretary of the Hanoverian Band Committee, Bath, would give dates of the shows and other particulars. Several local bee-keepers would gladly render assistance.—Llongborth.

ECONOMIC BEE-KEEPING.

[The accompanying letter from the *Royal Cornwall Gazette*, written by the Hon. Sec. of the Cornwall Bee-keepers' Association, places the 'Bligh Competition' in such a clear and forcible manner that we gladly give it insertion in our columns.]

Sir,—Will you permit me to make known, through the medium of your columns, a movement which will tend to bring bee-keeping more prominently under the notice of the people of England. The Hon. and Rev. H. Bligh, of New Hampton, last November, offered the British Bee-Keepers' Association a sum of money to be awarded in prizes for the best results to be obtained from apiaries to be worked at a cost within the reach of cottagers who are disposed to exercise a little thrift. The matter has been fully considered by the committee of the Association and has resulted in a scheme which, if properly carried out, will prove to the country that bee-keeping is a profitable undertaking, and show the relative merits of the different systems of bee-management. The Central Association has issued an appeal to all the affiliated county branches to assist in the proper conduct of the competition, and at a meeting of the committee of the Cornwall Bee-keepers' Association on Monday, it was unanimously resolved to co-operate in the movement. Six prizes are offered, amounting in the aggregate to 21*l.*, and the rules, drafted by the British Bee-keepers' Association, are such as to preclude any doubtful conduct on the part of the competitors. The competition is to be undertaken by expert bee-keepers, who are to establish and maintain an apiary in the garden of any cottager who will grant permission, the total capital to be employed not to exceed 2*l.* These experimental apiaries are to be started next May, and to be continued until the end of August, 1883. A strict diary is to be kept by the competitor, a copy of which must be lodged with the cottager, in whose garden the experiment is carried out. In this every item of expenditure and receipts during the competition is to be entered, and the apiary and diary are to be open to the inspection of the secretary of the County Association, or any deputies he may appoint for the purpose, at any reasonable time. Immediately the competition terminates the diaries are to be forwarded to the British Bee-keepers' Association, who will adjudge the prizes. Your readers will see that a strict supervision will be maintained over the hives; and as our County Association has made such a good start, I hope some of its members will come forward and take part in this important competition. There are a large number of bee-keepers in Cornwall, and if the efforts of those who have undertaken the active work of the Cornish Association result in an extension of apicultural knowledge, and in a more humane treatment of bees, an important step will have been taken to advance the position of our cottage population. Yours, &c.,—Chas. Kent, *March* 15.

AUSTRIAN SOCIETY OF BEE FRIENDS.

The Austrian Society of Bee Friends offers four prizes for the best articles on Bee-culture, one golden, one silver, and two bronze medals. English and French writers are invited to compete. The articles to be forwarded to R. Mayerhöffer, President, Taschwitz, near Karlsbad, before July 1st of this year.

THE CYPRUS AND MOUNT LEBANON APIARIES.

In the *B. B. Journal*, for February, page 217, I find in the 'Reply to Query No. 413,' signed 'Ed.,' the following statements, which are such as to demand a word of correction from me: 'It was claimed by Messrs. Jones and Benton that the Cyprian and Syrian bees were distinct in character, and they immediately set to work to breed both races in the Cyprians' apiary; and the Italian breeders have been doing worse by bringing Cyprians and Syrians among their Ligurian apiaries, so that presently it will be difficult to find or keep a pure race at all.' True, Mr. Jones, as well as myself, think the Cyprian and Syrian bee sufficiently 'distinct in character' to merit different names. But the next statement can best be answered by a brief account of the work undertaken by Mr. Jones and myself. We came to Cyprus together in March, 1880, and immediately established an apiary in Larnaca. While purchasing colonies in Cyprus and rearing queens in the apiary at Larnaca, Mr. Jones went to Syria and obtained a number of colonies of Syrian bees, also from Palestine a number of colonies were obtained. These were brought to Cyprus and transferred at once from the clay cylinders

into frame hives. The drones were destroyed in order to prevent the mis-mating of young Cyprian queens; and, in order to ascertain what effect crossing Syrian queens with Cyprian drones (the handsomest of all drones) would have, a few Syrian and a few Palestine queens were hatched in the apiary at Larnaca. Then Mr. Jones started on his homeward journey, taking with him every Syrian queen and every Palestine queen which he had brought to Cyprus, and also all queens reared from those mothers. After that a few daughters of the original imported Syrian queens were permitted to hatch, and were sent out by me as *Syrian queens fertilized by Cyprian drones*, but none of these were sent to England or to Italy, except a single one sent to the Editor of *B. B. Journal*, and mentioned on page 45, of July number, 1880. All colonies having been supplied with queen-cells from Cyprian mothers, and the hatching of Syrian and Palestine drones having been prevented, it will readily be seen that there was not after that time a drop of Syrian or Palestine blood in the apiary, except, of course, the few worker-bees, the progeny of the queens sent away. The past season also I obtained a few colonies from the mainland, and, after sending the queens away, hatched a few daughters from their brood, so as to produce a cross between Syrian queens and Cyprian drones, and all these latter were sent to Mr. Jones, in Canada, for purposes of experiment. *Thus, at the present time there are no bees in Cyprus that contain the least taint of any foreign blood, nor has there in fact any admixture of races taken place.* Furthermore, as the statements above quoted bring in question the quality of queens sent out by me, I have only to say that every queen sent out as a Cyprian queen is bred in Cyprus; every one sent out as a Syrian is bred in Syria; and every Palestine queen comes from Palestine, and at least in this part of the world, if not in other parts, there exists not the least chance of an intermixture of the races.

It is true that the Italian queen breeders have been getting Cyprian bees. This they have done in the belief that the latter would improve their own bees, and if they continue in this direction they are not likely to be disappointed, for the bees of Cyprus, as well as those of Syria, possess an animal vigour and power of transmitting their qualities to their offspring with other bees, not found among Italian bees. Speaking of crossing Cyprian and Italian bees, Count Gaetano Barbi, President of the National Society for the Encouragement of Bee-Culture in Italy, and one of the highest authorities in that country on bee matters, recently wrote: 'I am convinced that the crossing of Cyprian drones with Italian queens will give good results.' Professor Sartori, of Milan, another of Italy's first authorities in bee-culture, it was who imported the first Cyprian bees into Italy, and since then other prominent queen-breeders there have obtained them. I have sent a number of consignments direct from Cyprus there, but have sent no Syrian as yet, nor do I think any of this last race have gone there alive. I have good reason to believe that all the Syrian and Palestine bees thus far landed in Italy were collected *in alcohol* by an Italian queen-breeder, who then wrote some columns for publication, in order to tell of his wonderful exploit in capturing them! In closing, I would like to mention still another point which may not be generally known in England, as I am sure it is not in America, namely, *the fact that black bees exist in Italy.* Of this I can adduce many authorities, and from the Italian bee journals themselves, as witnesses. Thus I do not believe the introduction of Cyprian bees there will make things any worse, but it is quite possible an improvement may be effected in the bees of Italy.—Frank Benton, *Mount Lebanon Apiary, Beyrout, Syria, March 6th*, 1882.

[We willingly publish this letter, but Mr. Jones himself is responsible for the statement quoted above.—Ed.]

Correspondence.

*** *These columns are open to subscribers, so that their queries, replies, correspondence, and experiences may be* fully and faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

SWARMING *versus* NON-SWARMING.

I have been repeatedly asked whether, the production of honey being the sole object, will one gain most by preventing swarming as much as possible, or by swarming a strong stock in May, building up the swarm with foundation (which is now so cheap), and giving a queen to the queenless hive, so that when the later honey yield begins there may be two strong hives to gather instead of one.

In reply, a good deal may be said on both sides: in the first case, suppose a stock be strong enough to swarm, if a swarm be taken from it, the chances are the stock will still be able to gather food enough to feed its brood, &c., while the swarm will secure sufficient to enable it to convert its foundation into comb, and raise a large batch of brood, so that in about a month after the division each hive will be in nearly, or quite, as good condition as the stock was at first. But it will be evident that as the stock could support itself without the swarm, the latter, if left in the hive, would have been able to store all it gathered; and as there is every reason to suppose it would not have gathered less than if on an independent stand, there would probably be from 20 lbs. to 50 lbs. (or more) of surplus honey which the bee-keeper could appropriate.

Again, if the weather were so unfavourable that the undivided stock could put by no stores, it is certain that if divided, both parent and swarm would require artificial aid to enable them to live and prosper. If, however, the *later* harvest could be depended on, there is not the slightest doubt but that the dividing and building-up system would be the more lucrative, as the extra amount of honey stored by the two stocks would more than compensate for the loss in the first instance; and if it were not desirable to keep both stocks they could be united and the yield augmented by the extraction of all the honey in the spare combs, which latter could be saved to start a colony on similar terms in the next season. It is thus evident that in a so-called *early* season the non-swarming system would be most productive, but in a *late* season the swarming plan would yield largest returns. It has often been observed that a stock which has swarmed has done better than one similar in other respects which has not swarmed. This disparity may generally be accounted for by the fact that the former is sure to be headed by a young queen, while the latter may have one several years old and comparatively worthless.—J. A. Abbott, *Southall.*

ABBOTT'S WOODBURY STANDARD *v.* THE STANDARD FRAME.

I have been waiting for some time for the adoption of a Standard frame by the Bee-Keepers' Association, but now find that I must adopt your Woodbury in preference to it for the following reasons among others:—1st. The Standard frame is so near the size of your Woodbury that those who are now using yours will scarcely care to change. I may here remark that I do not at present possess a single frame of your Woodbury size. 2nd. As an ordinary 9-inch board does not plane up more than $8\frac{3}{4}$ in. the depth of frame will leave nothing for shrinkage. 3rd. A top bar only $\frac{3}{8}$ in. thick sometimes sinks out of the level, especially if it have a saw cut through it. 4th. The sides being only $\frac{1}{4}$ inch thick the top bars would take much longer time nailing on in order to avoid splitting them; and further $\frac{1}{4}$ inch would not be sufficiently thick for the sides of Giotto frames. 5th. A bottom bar only $\frac{1}{8}$ inch thick, even if of very hard wood, would hardly support sections of honey without bending considerably. 6th. If the sections are intended to be 4 in. by $4\frac{1}{2}$, both frames and sections will have to be very accurately made or they will not fit each other, to say nothing of warping. 7th, and lastly, as no length has been defined for top bar, hives will scarcely be more interchangeable than hitherto.—A. T. Wilmot, *St. Albans.*

FEEDING-STAGE AND QUILT COMBINED.

I have been for some time convinced that the use of crown-boards is a mistake, as they tend to prevent free evaporation and escape of moisture from the hive. I have adopted in their place a quilt constructed with Bass matting, such as comes round tea-chests, and can be had at the grocer's at a very small cost—four or five thicknesses of which are laid together after straightening out, and fastened securely with paper clips. They are then cut to the exact size of the top of the hive with a pair of scissors, and a round hole cut out of the centre with a sharp penknife about four inches in diameter, into which is introduced a circular flat piece of wood about $\frac{1}{2}$ in. thick, having the edge scalloped out so that the bass fits tightly round it; the piece of wood has a round hole cut out of its centre about two inches in diameter. The quilt thus formed is then laid over the top of the hive on the bars. The centre hole can be plugged with a piece of flannel in winter time, which can be removed when it is desirable to feed the bees; and a circular piece of ebonite or zinc, having a few holes bored through with a fine bradawl, can be placed over the centre hole on which the feeding-bottle is placed, or a revolving feeding-stage can be adjusted to the ring of wood.

I find this form of quilt allows of free ventilation, and the bees do not propolise it down, and it also keeps the bees at an even temperature. I use a circular piece of ebonite about $\frac{1}{8}$ in. thick for feeding stage, having about six holes bored through with a fine bradawl made hot in a gas-flame. If less holes are required they can be easily plugged with a match cut to the required size.—T. B. Latchmore, *Brand Street, Hitchin.*

[These quilts answer well enough when in position, but the difficulty is in putting them there without crushing the bees. We prefer a quilt that has for its first a very thin light layer that cannot injure bees; above that we lay 'anything' porous.—Ed.]

SKEPS COATED WITH CEMENT.

I have thoroughly examined my bees, and find that the straw skeps that I had covered with cement were exactly how you thought they would be. They were very damp inside, so I have taken it off. I am very pleased to say that I am one of the fortunate cottagers that have the *British Bee Journal* lent to me as mentioned in last month's *Journal*, for without that I should be quite in the dark. I think this has been a most trying winter for bee-keepers, especially cottagers, as it has been so mild. Bees have consumed a large quantity of food, and will require great attention in the spring months. Please will you tell me if bees can entirely live on barley sugar, as I like it much better than syrup, and they do not fly about so much in the cold spring and die from cold.—C. Pollard, *Haughley, Suffolk.*

[Barley-sugar is a good substitute for honey; bees can live on it for a long while, but cannot breed without pollen.—Ed.]

ADVANCED BEE-KEEPING.

Now that the subject of frame-hives is so prominently before the world I should like to know if there is any system known whereby a frame can be taken out of a hive without the escape of the bees, for I shall never consider any system in connexion with bar-frames complete until they can be removed individually from the hive, say for inspection, or to be placed in another hive, but if required to be placed again in the same hive, either in the old or in a new position, without the escape of the bees, and this all to be done without the aid of smoke or anything of that kind; and when this end is obtained (if it is not already obtained) I think there will be one more step made in advance, and one strong objection removed to the adoption of the bar-frame. —William Humphreys, *Apiary Cottage, Cuddington, March 7*, 1882.

[There would be no difficulty in making such a hive, but it would be very expensive and practically useless. —Ed.]

THE COMING STANDARD BAR-FRAME HIVE.

The British Bee-keepers' Association in trying to fix on a standard frame, has wisely written to the principal bee-masters in England for their experience. I sent them word that I hoped they would not fix on a hive less than *ten inches deep* inside measure, as, from my long experience and having tried nearly every size and make of hives, I found hives of that depth do the best.

I once had some of the Rev. L. L. Langstroth's hives, nine inches deep (the hive adapted and used by Mr. Woodbury), and working at the same time

some hives ten inches deep, that my father got made in 1806, and I always found that the bees did much better in the deeper hives, so I adopted the ten inches deep for my standard hive.

There is no advantage in adapting Langstroth's shallow frames, as recommended by Mr. Woodbury, as nearly all hive-manufacturers make the so-called Woodbury hive a different depth.—WILLIAM CARR, *Newton Heath Apiary, near Manchester.*

THE STEWARTON HIVE.

I read Mr. Briscoe's letter in your *Journal*, in reference to Stewarton hives, and quite agree with his remarks.

At the beginning of 1881 I commenced the season badly with one Stewarton hive; imprudently, during the winter, I left on a partly-finished super, into which the queen entered, and in the spring I got her majesty again into the breeding-box, I then gave an additional breeding-box, and all went well. This hive yielded me about I cwt. of beautiful honey in white comb, but if I had commenced the season more favourably I think I should have had nearly 2 cwt. of honey.

During the summer of last year, while the very hot weather lasted, my bees in the Stewarton hive were busily at work, while the bees of the Woodbury hives were hanging out and doing nothing. Another advantage connected with the Stewarton hive is, the fact of bees wintering so well in them; I simply cover the hive over with a loose-fitting box that goes all over it, and find no dampness whatever. Those who are opposed to the much-abused Stewarton system complain of the difficulty of taking the hives to pieces in order to inspect the queen; this is perfectly true, but if the object of keeping bees is, as I understand, to get a large quantity of good honey, my impression is, that the Stewarton hives are particularly adapted for that purpose.—W. R. DEYKIN, *Edgbaston.*

THE GIOTTO PRINCIPLE.

In view of the interest which is being taken in the 'Giotto' hive, it would perhaps be advisable to inform your readers, through the medium of your valuable *Journal*, that its inventor is about issuing a fourth and revised edition of his book and diagrams, and I have already arranged with my friend, Mr. 'Giotto,' for a copy to be sent to the Association Library as soon as it comes out of the printer's hands.—JOHN CAMASCHELLA, *Hon. Representative of the Central Bee Association of Italy.*

THE 'COPYABLE HIVE.'

I think that the thanks of the entire bee-keeping world are justly due to you for the gift you have recently presented to it under the name of the 'Copyable Hive.' I am only a beginner in bee-keeping, and I have already wished to see my bees occupying a hive of my own building, so I hunted through many books I have on this subject, but not being possessed of any manipulating skill in the carpentering line, I could not muster up sufficient courage to make an attempt upon any that I found described.

On reading your directions in the *Journal* for November last, under the heading 'How to make a First-class Hive,' I resolved at once to try my hand at them, and the result has indeed greatly pleased me, being now in possession of a really first-class hive of my own building. The only part of the work that I doubted being able to perform properly was the securing of the hive-sides to the ends, *exactly* 14½ inches apart, and *parallel* to each other, I was afraid that they might shift a trifle in the nailing; to obviate this I cut two pieces of board exactly 14½ inches long, and after having tested the edges with the square, I nailed them respectively on to the centre of the front and back boards, instead of ruling the lines upon them, as shown in your illustration (*c c*, page 129); this enabled me to hold the sides firmly against the ledges formed by the 14½ inch board, and to secure them in their proper position without the least fear of their shifting during the work. I have carefully detailed this part of the work in the hope that it may be of service to others who may be no better workmen than myself; you may possibly think this an unnecessary addition to your admirable instructions, which are in all details remarkably clear, concise, and easy to carry out; but I can assure you that it is quite possible for a novice like myself to find, in spite of the utmost care, that the work has somehow gone wrong when tested.

The 'Copyable Hive' appears to me (in spite of its having been overlooked by the Judges) to be a truly great advance in the progressive work of popularising bee-keeping, for it is truly, firstly, as good a hive as ever bees delighted to dwell in; secondly, it can be made by anybody; thirdly, its cost is the value of an old box or two, which can often be had almost for the asking.

I hope to hear that many of your subscribers have availed themselves of your generosity, thereby gaining much pleasure and some benefit.—LEWIS WOLFF, *Denbigh Lodge, Lower Norwood.*

THE INVENTOR OF TAPERED OR WEDGED-SHAPED FRAMES, AS USED IN MODERN BAR-FRAME HIVES.

I was pleased to see in your excellent *Bee Journal*, page 229, that my friend, the Rev. George Raynor, so promptly corrected the mistake he made in the paper he read at the last Quarterly Meeting of the British Bee-keepers' Association (see *British Bee Journal*, p. 203), where, speaking of tapered frames, which from long practical experience he so strongly recommended, said, 'Its inventor, Mr. Abbott, if he had conferred no other favour on bee-keepers, would have deserved our warmest thanks.'

I was also pleased to see that you, Mr. Editor, so frankly acknowledged (as is your custom whenever you see a mistake) that I was the inventor or first used wedge-shaped or tapered frames in a modern bar-frame hive.

I made a set of rectangular bar-frames for one of the hives my father got made in 1806, and in transferring the combs out of a common straw-hive, it struck me it would be much better if the frames were made wedge-shaped, as the combs could be fixed firmer in the frames, and would be much easier to manipulate, as it would give more space as I lifted the frame up out of the hive. It would also give me a larger comb, or a greater number of cells in the same size of hive.

So the second set of frames I made them tapered or wedge-shaped by leaving the bottom of the frame the same length as the first set of frames I made; but the top of the frame I made half an inch longer. These were the first bar-frame hives I ever used, and I have used in my hives only wedge-shaped frames ever since, and every time I open one of these hives I am more in love with the tapered frames. I never crush a bee and teach all bee-keepers, that the first law for successful bee-keeping is '*never to kill a bee*,' not even to destroy one by allowing it to sting you.

My frames are half-an-inch longer at the top than at the bottom, which is quite sufficient for every purpose, and much better than a more tapered frame.

These, my first bar-frame hives, Mr. Editor, were in use, I believe, many years before you ever made a bar-frame hive, and before our late friend, Mr. Woodbury, ever wrote an article on bees in the *Journal of Horticulture*.—William Carr, *Newton Heath Apiary, near Manchester*.

[We did not, so far as we are aware, make admission of mistake, nor did Mr. Raynor in the article alluded to above, and Mr. Carr appears to be slightly begging the question. All that has ever been claimed for the Carr frame (to our knowledge) is that 'The wedge shape of the frames is found a convenience when fitting combs in frames (*i.e.*, transferring them—Ed.), for should they give way a little they become more firmly wedged' (see Neighbour and Sons' Catalogue, 1868).—Ed.

SECTIONS IN REAR OR ON TOP OF HIVE?

I wrote to you at the early part of last summer recommending hives of a form to hold supers in the body of the hive, of course protected with the square-holed zinc. I fear I might have misled some of your readers, and I may say I was induced to recommend inside storage of sections from the readiness with which both old stocks and swarms took to them. My experience later on in the summer was dead against this plan, and I shall never again put sections in the body of a hive for the following reasons:—

My bees swarmed early and were put in ten frame Woodbury hives, with seven frames, and the rest filled in with six 2-lb. sections (we can't do with larger hives in this part of Yorkshire). All went well until the bees required more room, when supers were put on the top, and in *every* case (some fifteen hives in all) the bees (I found in removing supers in autumn) had left the inside sections unfinished and filled the top ones, evidently preferring them to those inside. I had not a single inside super finished, and all were of a dirty white colour and unfit for use as comb honey. This, of course, was from the heat of the hive and the greater number of bees stored on the combs. I know you will say that I put on the top supers too soon, but if I had not done so the bees would have swarmed. You will then say that Woodbury hives are not large enough for our district, but here again you are wrong, as I have never had a complete set of sixteen 2-lb. sections yet from the top of a Woodbury, and in most seasons the bees hardly manage to fill the ten frames even with the aid of foundation and feeding. Even with the disadvantage of a bad district and bad summers I can make my bees pay pretty well, but not like you can in the south. I am going to try another plan this year, using eight frame Woodbury single wall hives, and instead of supering (we have no sale for super honey about here) put another of the same size on the top, of course with the thick flat foundation, and use the extractor frequently. I quite agree with the Rev. G. Raynor (*see* letter in March *B. B. J.*) that bees winter well with open frame-ends if you confine them to six or seven frames. I have done that for several winters and have had no losses. I even go further: I believe that single-wall hives will winter bees well if you confine them to six frames, with dummies on *each* side. This makes the hive really double-walled on two sides. I have not lost bees yet on this plan, but have not tried it on a large enough scale to be quite certain.

I broke up an old wooden hive the other day, the bees had died for want of food in the winter, after that very wet summer of two years since. The owner said there had been bees in the hive for forty years. The top was covered with zinc, and it and the sides had been painted every year, and the wood was quite sound. The cells were very small and black, and of an immense thickness. So much for single-walled hives.—Yorkshire Tyke.

P.S.—I forgot to say I have a piece of zinc fitted close to the hive-bottoms to shoot off the wet from the frame-ends when used to put on the top of the other hive. I also have two entrances, one at back and one at side; both can be left open if bees are working hard. The one at the side *only* if it is desirable to use excluder-zinc to stop them swarming, and only the one at the end in winter, when the bees are confined to the centre combs.

[In a letter accompanying the above our correspondent says, 'I enclose a few suggestions, which please pull to pieces in your *Journal* if you think proper;' but that task does not appear to be necessary, for on examination they fall to pieces of themselves. What could be sounder advice than that given to our readers by our correspondent, to put their sections inside the hive, because in that position both old stocks and swarms took so readily to them? His later experience does not diminish the value of the advice, because it was the result of action adverse to the principle upon which the advice was based. Instead of putting new sections on the top when more room was needed to prevent the bees swarming, if they had been placed in the hive the bees would not have deserted those already there; but inasmuch as there was not sufficient room in the hive for that purpose it plainly shows that the hive is not large enough for carrying out the principle involved. The ordinary Woodbury hive (14½ in. square, with 10 frames) may be too large for a brood nest in the particular locality named, but of itself

it evidently is too small for a longitudinal hive; and accepting that position our correspondent evidently did not do the best thing under the circumstances. Had he put the partly filled sections on the top of the frames, and the empty ones in the body of the hive, there would have been no desertion of the former, and they would have been quickly fit for removal, and the latter would then have had a good chance of being filled and sealed out. With sections in rear filling, and the hive prospering and showing symptoms of swarming, we know of nothing so likely to check their progress as giving greatly increased space above both the brood-nest and the sections. Had the hive been expansive longitudinally, and a few sections added to the inner bulk from time to time, the chances of swarming would have been lessened and no violent change made in the hive's temperature. The doubling system will doubtless enable a larger quantity of honey to be taken by the extractor, but it would be well, seeing how much more readily bees work in the body of the hive, to place the frames of foundation there to get the bees to work upon them before raising them, or suddenly doubling their hive may defeat the object in view.—Ed.]

WARM AND COLD WINTERING.

When I commenced bee-keeping in the year 1876, my first advice, from experienced bee-keepers was, if I could keep them cold and dry during winter, I was sure of success, for it put them in a benumbed and sleeping state, and therefore they did not consume much honey.

I had three hives, two in wood and one in straw: the wood hive was placed inside a box without any packing; the straw hive was covered with a piece of blanket, and thatched with a rush hackle, and I give results. Their weight (in autumn) was as follows:—

No. 1 wood hive,	54 lbs.;	in spring,	29½;	lbs. lost,	24½.
No. 2 „	48	„	30½	„	17½.
No. 3 straw „	38	„	31	„	7.

The wood hives kept up a humming all winter, and appeared to be very strong in spring, but they dwindled away very rapidly, and in a few days not a bee was to be seen coming from the hives, and six weeks passed away before they began to rally again.

The straw hive, although not so strong in the spring, gradually increased, and threw off two swarms before the others showed any signs of swarming, so I lost 35 lbs. of honey, and probably two swarms by trying to keep bees on the cold system.

I have been more successful in wintering bees since my motto being 'Keep them warm and dry,' I keep them in double-walled bar-frame hives, with a space of from one to two inches between stuffed with wool or soft hay, and the quilt from two to four inches deep. Last winter was the coldest and this the mildest, and I have never had a damp or mouldy quilt.

One hive swarmed out on 4th Feb., a cross Italian, the only one mated out of five last year. It went into a hive and dethroned the black queen. My other hives appear to be in a healthy condition Since I wrote bee-hives have become a good deal scarcer in this district.—Francis Baillie.

[*Bee-keeping for the Many*, published at the office of the *Journal of Horticulture*, says, in 'September:'—'Keep the stocks as cool as possible till the end of February.'—Ed.]

IRISH BEE-KEEPERS' ASSOCIATION.

Your strictures on our I. B. K. A., and your censure of our much-respected hon. sec., have certainly much more of the *fortiter in re* than of the *suaviter in modo*. And with regard to the latter, I cannot but regret that you did not act upon the precept to 'tell him his fault between you and him alone,' before you denounced him before the world of your readers on *ex-parte* and, probably, prejudiced information, as I am sure he would have courteously removed your misapprehension, instead of having indignantly to repel an unfounded charge.

Now as to our Association! You seem to have forgotten that it is in its infancy, and in circumstances most unfavourable to its development, indeed, to its very existence. Not only have we had two very discouraging seasons in many parts, but in fully three-fourths of Ireland a state of things, which, however pleasant to look upon from your distant, safe, and apicultural point of view, presents to those, in its immediate proximity or in its midst, something more disastrous than the waste of our ungathered sweets, or the 'apathy' of the official of a nascent Bee-keepers' Association. 'Apathy!' pray call it by its proper name. '*Selfish* regard for life, and limb, and family, and homestead!'—Tut, trifles light as air. '*Floreat apiculture, ruat cælum.*' Sir, when landlords cease to be *the destitute* class; when men of loyalty and respectability can travel our roads without fear of the lurking assassin; when an honest man can lie down at night without apprehension of a visit from midnight marauders, or of finding himself and his loved ones blocked up in his house which the incendiary has fired; when our farms may be tilled in peace, and our cattle be left unmutilated on our pastures; when stagnant trade and commerce revive; and when the class to whom we owe this deplorable state of things, and for whose special benefit our Association was ostensibly formed, have returned from the lawless wandering to the paths of peace and honesty,—*then* we may hope our Association may flourish; then, and not till then, can you expect the gentry of the country, who surely must take the initiative, to busy themselves with a *pastime* suggestive of halcyon times and minds at ease; till then our Association cannot possibly be in a position to meet the demands which are now *absurdly* made on our limited resources. One of the 'well-founded' complaints is, that no lectures have been delivered during the past winter. Certainly this was very reprehensible in our secretary, with the large balance to the credit of our Association of 18*l.* (vide Dublin correspondent, page 237.) 18*l.*, only think of it!—all that lying idle while so many localities, that have contributed 5*s.*, have been unvisited by a lecturer. Sir, out of 100 members, 84 pay 5*s.* and under, scattered over the length and breadth of Ireland. Has your correspondent made out a 'well-founded' cause of complaint?

Another, Our secretary 'fears to take any active or energetic step' without the concurrence of the committee, whose servant he has voluntarily and disinterestedly made himself; this is the strangest 'well-founded' complaint I ever heard. It would be a good idea to invest secretaries with unlimited authority to dispose of the funds and property of all institutions at their own sweet will; only they might require a guarantee that the management should never be questioned. Had our hon. sec. acted without orders he would, in all probability, be pulled up for it by your querulous correspondents. With reference to your lecture on the responsibility of officials, I agree with you that every office *sought* or *undertaken* involves a duty to be performed; but if the honour be thrust upon a man, not only without his concurrence but against his remonstrance, only because, from his experience, he is one of the few who would be useful if he could attend, what responsibility rests on him? This is my case, and that of many others remote from the capital (I am seven hours from it by rail).

Your lecture on responsibility, however well intended, may, I fear, do infinite mischief.

Our respected and efficient secretary, whose professional duties occupy nearly one half of the twenty-four hours each day, lately contemplated resigning his office, and if your diatribe drive him to do so, you shall have caused an irreparable damage to our Association. So much for attending to idle complaints, and not honestly referring the matter at once to the accused. If your future observations, with regard to our Association, take the tone of brotherly sympathy and advice, instead of dictatorial censure, they will do infinitely more good; and if your complaining correspondents will for the future make inquiries at home instead of complaints abroad, their mistakes will be corrected without giving annoyance to one who devotes so much time and labour in the cause. For *prudential reasons*, I subscribe myself, —Fair Play, *Ireland*, March 20th, 1882.

[It is scarcely in accord with the spirit of fair play to suggest that the aspect of affairs portrayed by our esteemed correspondent is 'pleasant to look upon,' even from a safe distance, and we are sorry to know that the political condition of the country is taken into account in connexion with the Irish Bee-keepers' Association. That Association was established to promote bee-culture, not as a 'pa-stime,' but as a profitable industry, with the especial object of improving the condition of cottagers and the agricultural and labouring classes generally, and certain means were devised by which this object should be carried out, and the complaint is, that during the past winter nothing has been done: and if the committee generally hold the views announced by our correspondent we fear very little ever will be done. With an admitted balance in hand of 18*l*., at least half-a-dozen lectures might have been delivered, and as many new centres of interest created. But this, it appears, could not be, because 18*l*. is a paltry sum, and because the villages where a knowledge of bee-culture would be invaluable, can be numbered by hundreds and are poor. Our correspondent's observations on the relations between a secretary and his committee have a painful odour about them that sets one thinking of the condition of an Association whose board of management cannot or will not meet, and whose secretary cannot or will not act. We will not offer a prescription for the cure of such a case lest we give further unintentional offence, but we dare to think that if, under such circumstances, a change in the constitution of the board occurred it would not be a very terrible evil. We are exceedingly sorry that we cannot agree with all that has fallen from our correspondent; the excuses for inaction are not satisfactory under the circumstances—honorary honours are one thing, and honorary duties another. A man may have the former thrust upon him in a complimentary way, and he may wear them as loosely as he pleases, but in the other case, unless he is able to fulfil the duties he undertakes, the sooner he lays down his honours (?) the better it will be for all concerned. We have due regard for the 'prudential reasons' that keep 'Fair-play's' identity in the background; but cannot he give the original complainants credit for a similar 'selfish regard for life, and limb, and homestead'? if such feelings are not unworthy under the circumstances. We deeply regret the importation of class grievances into the question, and most certainly this specimen will remain unique.—Ed.]

BEE-KEEPING AT GREAT YARMOUTH.

Just a few words about bees and bee-keeping in this district. They are doing very well; mine, I may say, first-rate, thanks to your very kind instruction last year. Our Association is still progressing, and I trust ere long we shall have a Bee Tent, and an expert who will instruct the labouring people and others not to destroy their bees, but keep them, and by so doing, make a good thing out of them. We are doing very well in this particular corner of Norfolk. Mr. Thomas Crane Edmonds, of Caistor (a pupil of mine), is nominally appointed expert of the Association, and he has taken very great pains to post himself up in modern bee-culture. He is an old bee-keeper on the old system, who at once saw the benefits of modern treatment, and is now giving lectures and illustrations of the improved system. To-morrow, Thursday, he gives a lecture at Ach, a large village half way between this and Norwich; and arrangements are being made for him to give three or four more, at other adjacent places, all of which he does free of charge. Last Friday I had the pleasure of giving practical instruction to a number of ladies and gentlemen interested in bee-keeping at my garden, to their great delight; it was a most beautiful warm day, and everything went off satisfactorily. Mr. Edmonds assisted me.

I have had a Cyprian queen from Mr. Blow. She arrived here on Friday the 10th March, and next day I took from one of my hives two frames of brood and honey, and placed these into another hive, then put her and the bees that accompanied her into it, about 250 to 300 bees, bearing in mind a remark you made to me on one of my very pleasant visits to you, that one of your best hives was started with a prolific queen and only about 200 bees. I determined to try what I could do, and am pleased to say they are doing very well. I found on examining them a few days afterwards, that the brood was not being hatched out, so I at once introduced hot-water bottles on each side, which has had the desired effect; they are now nearly all hatched out, and I have every prospect of making them into a strong colony. I propose in a few days to give them two more frames, removing those I gave them first to the original hive.

I am strongly of opinion that if there was one standard frame throughout the country, it would be a very great convenience to bee-keepers, and I trust the committee that is appointed to recommend something, will do well to take into consideration the 1-lb. sections; a frame $17 \times 8\frac{1}{2}$ in. inside will take eight of these, and from my own observation the frame, independent of this, seems a good size, as it gives a lot of space for bees to store honey. Trusting I shall have the pleasure of seeing you during the summer.—Samuel Barge.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The Library.

Allow me through your *Journal* to acknowledge with thanks the gift of the following works to our Library:—

From G. Henderson, Esq., Ealing—'Nutt on the Management of Bees,' 1848.

From R. Watson (no address).—'Milton's Practical Bee-keeper,' 1843.

From J. W. Measures, Esq., Long Sutton, Lincolnshire.—Cheshire's 'Practical Bee-keeping.'

From R. Roberts, Barnet.—Wildman's 'Natural History of Bees,' 1744.

From the Rev. W. J. Frere, St. Mary's Vicarage, Wolverhampton.—The complete set of 9 vols. 'British Bee Journal' for a mere nominal sum (a most valuable addition).

The Library now numbers some thirty-six volumes, and so soon as it reaches fifty the books will be catalogued for circulation.—R. R. Godfrey, Hon. Sec., *Grantham*.

Corrections.—Page 227: Column 1, line 2, for 'twenty pounds' read 'upwards of eighty pounds.' Column 2, line 7 from bottom, for 'improvements' read 'movements.'

Echoes from the Hives.

Coventry.—'The hum from my bees is one of lively satisfaction at the mild weather we have experienced and the prospects of an early season. Breeding has been with me as early as ever I remember. I have seen more than ever the advantages of feeding upearly where wanted, for it has made a second swarm of Ligurians better than the first. Though this last was well provided, all its stores were used, and breeding ceased in the early spring, just at the time when the one which had been fed commenced. The one that has done the best has had no sun on it all the winter, but I do not think this would be equally good in all seasons, though some writers on bees say so. All my ten stocks have been safely wintered.'—C. Shufflebotham.

Tisbury.—Bee-houses.—'I am glad to find that somebody will advocate the use of bee-houses. I remember having the pleasure of visiting you when you were at Hanwell, and seeing what you considered the proper use for a bee-house, viz. as a tenement for chickens. Since that time, I have never dared to tell anyone that I make use of bee-houses; but I do so, and with great success: I think they are invaluable for wintering bees in. I, however, allow each individual hive quite twice as much space as was suggested the other day.'—Aston G. Radcliffe.

Bee Gloves.—'I like your gloves very much, but think the gauntlets would be better larger to cover the end of the coat-sleeve. I may say that I have used the *strong* kind of glove, only of a darker colour, for manipulating bees, and found it sting-proof. I have put my hand into a small hole in a hollow tree, and pulled out all the comb and bees without any smoking, &c., and without getting stung, so can speak from experience.'—Arthur J. H. Wood.

Glasgow.—'While I am writing to you there is a terrific snowstorm going on outside, in fact, the worst we have had this year. For the last ten days the weather has been delightful, but here comes the check. Hope we shall have a better honey year. James Anderson is going off to America to try his luck there; you will recollect he was at your first Crystal Palace show with the octagon supers.'—R. J. B.

Bees visiting various flowers.—'On the 10th February, in my tiny greenhouse, a bee went from a blue campanula to a yellow coronella, and *vice versâ*, collecting the pollen from each alternately without going home; there could be no mistake as there was only one bee in at the time.' —J. R. T.

Queries and Replies.

Query No. 455.—*Giotto Hive Management.*—I have two strong stocks, and with plenty of brood in large frame (Abbott Standard) hives of nearly black bees. I am going in for Giotto frames (six 1 lb. section size), to be encased in rough boxes. My ambition is, without buying more bees, to have at the end of the season six to eight hives well stocked with Ligurians, and, if the season be good, some section honey as well. Such a result, to judge by your own experience, is I believe, possible. Will you suggest shortly the *modus operandi* most likely to bring about such a result?—H. B.

Reply to Query No. 455.—There ought to be no difficulty in multiplying two strong stocks into eight, or even into twice that number; and with good weather it could easily be done, but inasmuch as it is not possible to control the fertilisation of young queens, we are not able to promise that they shall be Ligurians, and without buying more bees, or at least one or more Ligurian queens, the chances in favour of their being Ligurianised at all are very diminutive. We will, however, suppose that one of the stocks is headed by a Ligurian queen, and that all the increase are to be headed by queens reared from her ova or larvæ, the other, the nearly black stock, being used as a 'feeder' to aid in their building up. Having, then, *a*, a Ligurian, and, *b*, a black stock, both strong, as described, we would, when the weather and surroundings are fair, make an artificial swarm from *a*, consisting of every bee it contains, and having put them into one of the Giotto hives, would put them on *a*'s stand. The hive of combs from which the swarm was taken should be put upon *b*'s stand, the stock *b* being removed to a *third* stand some yards away. It is scarcely necessary to say that the frames of all hives into which swarms are placed, and all frames added to hives or swarms, should be fitted with foundation in the usual way, as without this the chief element of success will be missing.

We have now, swarm *a* on its own stand in a Giotto hive (confined to as many frames only as the bees can closely cover on both sides), we have the combs of *a* containing the (supposed) Ligurian brood on stand *b*, now populated by all the flying population from hive *b*, and we have the last-named hive, *b*, on a separate stand, showing an increase of one already. Swarm *a*, being a strong one, will in a day or two have worked out the five or six frames of foundation first given to it, and will need an additional frame or two of foundation daily, to be put between two that have been worked out, so long as the bees are sufficiently numerous to work it into comb. In this way fifteen to twenty frames may be expected to be built out, some of which (we advise) should be in sections of about half the usual width, or, say, about an inch and a quarter. Having a frame divided into six equal parts will not rob it of much of its comb space, and the usefulness of the sections thus arranged will quite compensate for any other loss that may be occasioned. (See 'Hints' on 'Sections and Frames,' p. 243.) The hive of combs on *b*'s stand will within a week have built out a number of Ligurian queen-cells, which will be ready for hatching about the fourteenth day after the first operation. On the tenth day we would make an artificial swarm from the original black stock *b*, taking the queen only and putting her with as many flying bees as may accompany her, into a set of Giotto frames on their own stand, the stock itself being further removed. During the next two days all the flying bees belonging to *b* will have gone to the swarm now on *b*'s late stand, which we will call *c*, and for ease of identification the stock hive *b* we will now call *d*, it being on a fourth stand.

We have now, *a*, a Ligurian swarm near a fortnight old in Giotto frames; *b*, a populous Ligurian stock in standard frames, with sundry queen-cells formed; *c*, a black swarm, newly made, in Giotto frames, ready for the treatment received by *a*; *d*, a black stock, full of brood, just becoming aware of its queenless condition, with all its old bees departed, but with many hundreds of young bees hatching daily from the combs.

With these elements, all prepared within a fortnight their successful multiplication into eight or ten is only a question of dividing and equalising them. The object, as we understand, is to get all the bees into Giotto frames. There are sixteen (at the least) standard combs to be transferred, each of which will more than fill a Giotto frame, and two of these will be sufficient to form a Giotto nucleus in which to hatch out a Ligurian queen. In forming these nuclei, which will be done by putting two frames and one queen-cell into a Giotto hive and stocking them with bees, but a certain amount of care is needed, or the division will be very unequal, the first nucleus will, as a matter of course, receive the most nearly mature queen-cell, and, in due course, will have the first hatched queen, and will, therefore, be in a fair way of natural increase before those that receive later

cells. In selecting combs for this nucleus, we would take one from stock-hive *b* and one from *d*, both quite free of bees, that from *b* containing a ripe queen-cell and few unhatched bees, and that from *d* nothing but newly-laid eggs and store.

Those in the Giotto hive should then be placed on the stand occupied by stock *d*, *d* being removed a few feet to the right or left, when the nucleus will at once be stocked by the flying bees without unduly diminishing the population of *d* itself. On the same day a similar operation should be performed, and stock *b* removed in a similar way, and so on from day to day, until the combs are all utilised. It may be necessary to cut queen-cells from one or more combs to splice into others to ensure a fair distribution of them, but that is a minor matter, and easily accomplished. Now while all this nucleus work has been about, the two swarms will not have been idle. The first will (ordinarily) have become heavy with brood and honey, and there will be, or should be, several combs capable of removal from it with which to help on the nuclei and give them employment. It will not injure the swarms in a sensible degree if combs containing eggs are occasionally taken from them, provided empty combs be put in place of them, and this can easily be arranged from amongst so many. Some of the nuclei may almost from the first be in a position to build new combs through having a larger number of bees than others, and frames of comb-foundation may with safety be given to them, provided the brood is all sealed, but it must be a question of judgment and consideration of the weather and the surroundings whether the new sheets of foundation be placed between the brood-combs or on one side of them; in cool weather, parting the brood would be highly injurious.

In the foregoing we have shown how to make two into ten right away, but it may suit the ideas of cautious people to make two into six only as a first series of operations, but that is such everyday work, simply the result of two stocks swarming and casting that little advice is needed thereupon. The great prop of the whole concern is the formation of an immense early swarm of the whole of the bees in a strong hive, and setting it comb-building, egg-laying, and brood-raising ten days in advance, so that, when the nuclei are formed and in working order they may be helped without injury to the early swarm, and get supplemental help from the later one.—Ed.

Query No. 456.—*Zinc Slides and Distance Pins.*—By what process can zinc slides, firmly glued down by propolis, be loosened from their grooves in a crown-board, so as to give entrance to the super? All efforts to remove them have hitherto failed. The tops of the frames in the stock-box are much in the same condition; they are separated by distance-tacks, but all is so completely embedded in propolis, that it is with the utmost difficulty they can be removed, coming away with a crash that both annoys and disturbs the bees, and is not favourable to successful manipulation of them. I shall be greatly obliged for any hints, whereby this evil may be remedied.—E. B. S., *Eastern House, Anglesey.*

Reply to Query No. 456.—We know of nothing better than the application of heat to soften the propolis. A hot laundry iron or tailor's goose applied over the slides will have a beneficial effect.—Ed.

Queries No. 457.—*Giotto Hive.*—The improved Giotto frame-hive is deservedly attracting more attention with each issue of the *Bee Journal*, and in reference to it I should like to be allowed to ask one or two questions with a view to the hive being made as useful as possible.

1. If the top bar of each frame is made to extend, say three inches, beyond the outside of the frame-end to reach the slip nailed to the shell, which acts as a runner, how are the chaff cushions (for winter protection) to be inserted between the end of the frames and the outer shell without greatly disturbing the bees?

2. Instead of nailing the bottom rail of each frame (14 inches in length) *under* the frame-ends, would it not answer better to shorten the bottom rail and nail it *within* the ends a quarter of an inch clear from the floor? This plan would allow all the frame-ends to rest solidly on the floor, and, in my opinion, would tend to make the whole much firmer.

3. Before comb-foundation is given to the bees should holes be cut in it to afford passages for them?

4. If the top bar of the frame were cut into two half-inch strips instead of a slit part of the way only, would not the comb-foundation be more readily fixed?

It would be a very great convenience if you could devise some ready way of clamping the front and rear dummies together so as to suit the varying number of frames to be held between them.—Wm. Child, *Elliott House, Ilkley, Yorks.*

Reply to Queries No. 457.—1. As proposed by us, the close-framed hive is a long one, and not half its length being needed for winter space, it will be quite easy to push in any kind of winter packing from the rear without disturbing a single bee.

2. The plan proposed would be destructive to bees and to the comfort of the bee-keeper. If the frames stood upon the floor, putting them there would cause much destruction of bee life; and shrinkage of the sides of 'the shell' of the hive would lower the runners nailed to them, which would have the reverse effect to that intended.

3. Cutting holes in foundation will weaken it, and we would rather make them in the comb when required.

4. This is a matter of convenience; but we would rather have one end only of the frame loose when fixing the foundation. We *have* devised a means of clamping the frames together which is simple, effective, and almost costless. It will be illustrated in our next.—Ed.

Query No. 458.—*Controlling Swarming.*—Not having convenience for an increase of stocks this year, I am anxious to know whether there is any *certain* way of preventing swarming. I have only wooden hives, but they are not all frame hives. I have been told a stock will never swarm until it has drones. Supposing a drone-trap affixed to each hive, all the drones being trapped as they appear, the stocks would be in the same condition as if they had not bred drones, would it not result that there would be no swarms?—Amateur.

Reply to Query No. 458.—There is no certain way of preventing swarming except by the removal of the queen, and cutting out queen-cells as they appear, and so keeping the hive queenless, which would be suicidal policy. Stocks will not swarm without queens, but drones are not absolutely necessary, or keeping a stock droneless would be effectual in preventing swarming. The method proposed would not destroy the drones within the hive, and except that the same trap that caught the drones would also catch the queen, it would have very little influence on the swarming mania.—Ed.

Query No. 459.—*Spring Feeding.*—I have had considerable trouble with making both spring and autumn bee-food. I generally purchase (at a time) 3 lbs. of loaf sugar at 3½*d.* I put it on the hob with half a pint of water; when nearly dissolved, set on fire; when on the boil, add half small wine-glass of vinegar, and boil ten minutes. Result: as soon as it is nearly cold, I put on hive, and in a few hours a thick crust of candied sugar is formed, which effectually stops all supply. I tried again and again, then again, with less boiling and more water, but have not produced a syrup that will not candy. Will you tell me wherein I fail? Ought I to buy best sugar? As I have taken the *Journal* but lately, will you tell me where I shall find instruction for making a swarm, as I have access to back numbers? Allow me to say your 'close-ended' frames will be *the* frames of the future.—H. H. G.

Reply to Query No. 459.—There are so many grades of sugar that general directions for syrup-making have only partial value, and every one must correct them to suit his own case. A little more vinegar added while the syrup is boiling would very likely correct the disposition to 'candy.' It is always best to buy the best English sugar, if it can be obtained, but of late we have had sugar delivered as 'best' that, when water was added to it, became quite green. Having access to back numbers, if you look in indexes you will find 'Artificial Swarming' many times described, or it may be had from our office, post free, for one penny stamp.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Rev. R. N. W.—*Giotto Hive.*—We know of no reason for closing up a hive until bees not within the comb space have had opportunity for escape. If the roof be left a little askew for a short time, the out of place bees will soon depart. Close-ended frames may be made to go into a Woodbury hive, and may be used amongst Woodbury frames, but the principle is essentially not the same.

Combs and Foundation.—Too much foundation was given to the bees at the first, and they have evidently been building, in some instances, on one side of it only. The worker brood combs should be about an inch thick and half an inch apart, the honey-combs only about a quarter of an inch apart, and any thickness the bees choose or are able to make them. Putting the frames farther apart would cause the bees to build useless thin sheets of comb between them.

American Bee Publications.—We know of no place in England where the *American Bee Journal* can be obtained. Messrs. Trubner, the foreign publishers of Ludgate Hill, London, act as American agents, and will get any works ordered of them. Several American works are advertised in this *Journal*.

Bligh Competition.—The intention is that skilled experts only shall compete, to show what may be done in cottage apiaries, *i.e.*, apiaries of the humblest pretensions, when bee-keeping is properly understood. There are many competitions open to cottagers only, and there are many cottager experts who do wonderfully well, but the intention, evidently, in the Bligh competition, is to prove that, with a better understanding of bee-matters, cottagers, with the simplest appliances, might do a *great deal better*. The charge for queen-bees is evidently in respect of Ligurian or other foreign bees.

Puzzled One.—*Abbott's Foundation fixer.*—The proceeding is of the simplest—the section lies in the flat upon a table, the foundation is laid upon it a little more than half covering the part to which it is to be fixed; the piece of wood (the guage) is laid on the foundation, and held so as to exactly half cover the section, leaving a portion of the foundation exposed; the roller is then dipped in the starch and rolled along the exposed portion of the foundation, pressing it into the fibres of the wood. The starch is simply used to prevent the roller sticking to the foundation—dipping the foundation into the starch will of course defeat the object in view. The index herewith will direct you to the illustration.

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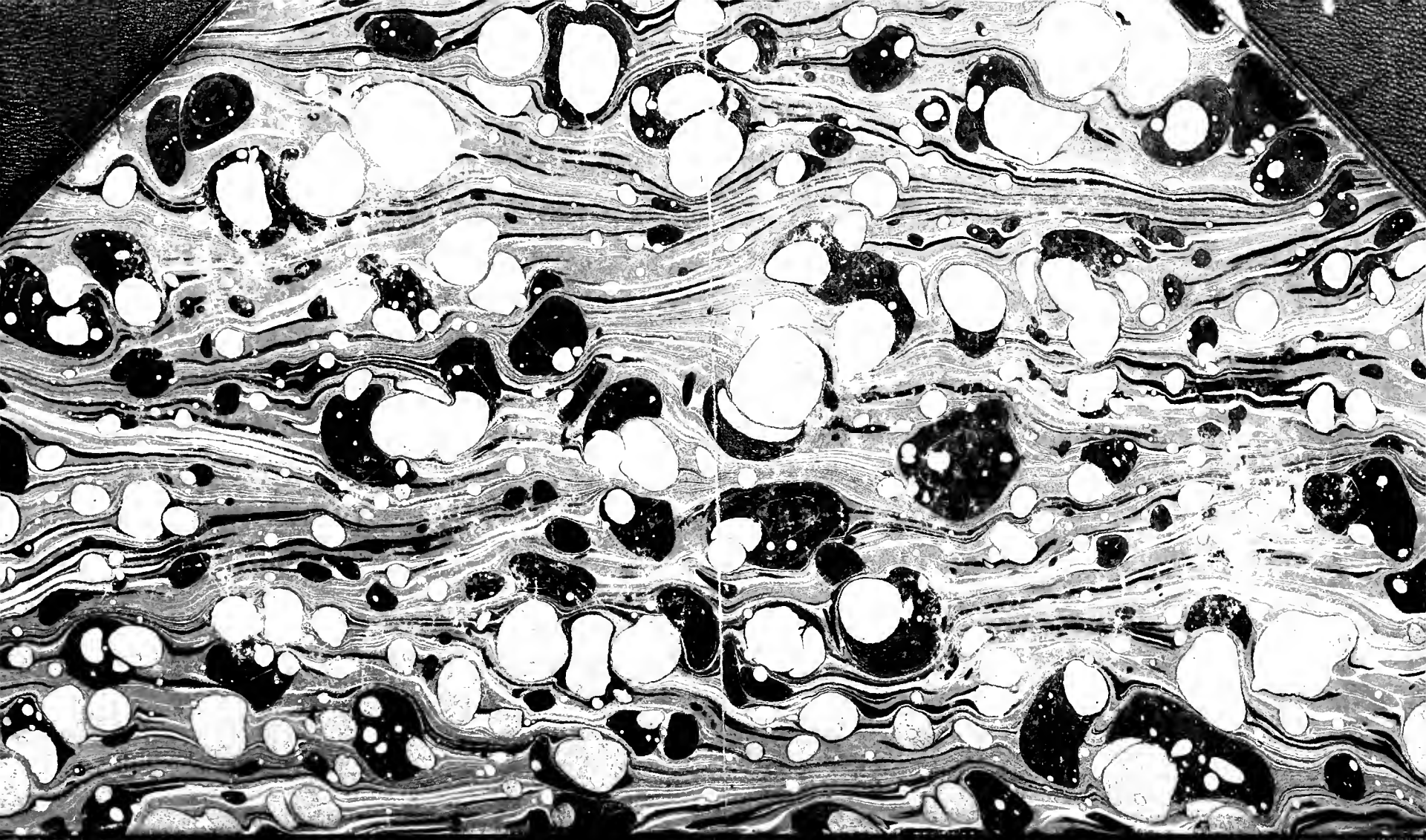
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